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Theme :

EDUCATION OF THE DISABLED

COLLECTION OF PAPERS



EDUCATIONAL RESEARCH AND INNOVATIONS COMMITTEE
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EDUCATIONAL RESEARCH & INNOVATIONS COMMITTEE
NATIONAL COUNCIL OF EDUCATIONAL RESEARCH AND TRAINING

THIRD ALL-INDIA CONFERENCE ON EDUCATIONAL RESEARCH

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1.1.0 A STUDY OF THE PROBLEMS RELATED TO EDUCATION OF THE PHYSICALLY DISABLED CHILDREN IN KARNATAKA.

BY

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ABSTRACT

In Karnataka there are 18 special institutions rendering educational facilities to the physically disabled children, i.e., the blind, the deaf, the dumb, and the orthopaedically handicapped children.

This study attempts a survey of the existing educational facilities and to identify the problem areas in the education of the physically handicapped children in the age group 6-18 years.

The sample covers 15 heads of such special institutions, 52 teachers teaching the handicapped children, 470 handicapped children, studying in those special institutions, 40 parents of the physically handicapped children, 9 welfare associations and 6 experts, who are working for and interested in the education of the physically handicapped children.

Questionnaires and interview techniques have been used to collect information regarding the existing facilities and about the problems in the education of the physically handicapped children.

The problem areas identified are : (1) scope for special education, (2) curriculum and instructional materials, (3) training of teachers, (4) administration of special institutions, (5) parental education, (6) coordination among the various departments dealing with the education of the physically handicapped children, (7) participatory activities by the welfare associations, (8) finance,

(9) research and (10) facilities for teachers, students and other items.

The nature of the problems concerning these and the main consensus obtained from various respondent groups are highlighted in the main paper.

A Brief History:

The history of Education of the Disabled such as the blind, deaf and the mute, can be traced back to the beginning of 20th century. A school for the blind, deaf and mute was started by a voluntary agency at Mysore during 1901. This institution offered courses which were literary and vocational. Literary education for the blind included learning of Braille alphabets and numerals. The deaf children were imparted literary education which included lip reading and sense culture to begin with, writing of alphabets and numerals at higher stages. The vocational courses for both the blind and deaf children covered weaving, carpentry, ratton work, tailoring, spinning, fret work, etc. This institution earned a very wide reputation which attracted disabled children from outside the state, namely, the Bombay Presidency and the Madras Presidency and from the Nizam's Dominions. In addition to this, a normal section was started during 1921-22 with a view to train men to take up the work of teaching the deaf, the blind. By 1927, the Government took over the responsibility of the management of this institution. Even to this date the school exists at Mysore with 2 separate sections - one for the blind and another for the deaf.

Till 1954-55 no efforts were made by the government or voluntary agencies to start schools for disabled children. It was only then that a school for the blind was started at Hubli by a voluntary agency which was given financial assistance by the government and had 12 students on roll by

During 1958-59, a Christian Missionary started an institution for the blind at Whitefield near Bangalore.

During the years 1962-65 the Government of Mysore started two more institutions at Gulbarga for the deaf and the blind children. In South Kanara District during 1968, Institute of Social Services in Mangalore started an institution called 'Poshini Nilaya' wherein the blind children were trained in Braille, handicrafts, music, drama etc. It was a non-residential vocation-oriented school having parental involvement in the rehabilitation of their blind children.

During 1970, five more institutions were started to cater to the needs of disabled children, of these, 2 were meant solely meant for orthopaedically handicapped children.

At present there are 18 institutions in the state catering to the educational and vocational needs of the disabled children.

T A B L E - I

Special Institutions: Number, Teachers and Students:

Year	No. of Institutions.			Total	No. of Teachers in school for			Total	No. of students in special Institutions.			Total
	B	D	O		B	D	O		B	D	O	
1956-57	2	-	-	2	2	-	-	2	63	54	-	127
1966-67	4	1	-	5	4	1	-	5	154	135	-	289
1976-77	9	4	2	15	41	9	3	53	380	347	14	741
1980-81	10	6	2	18	52	44	9	105	407	390	20	817

B: Blind D: Deaf O: Orthopaedically handicapped.

Source: Karnataka State Educational Progress, Statistical Brochures, Department of Public Instruction, Bangalore.

Table I presents the number of special institutions, then teachers and students from 1956-57 to 1980-81. The table

reveals that there has been considerable expansion over a period of 25 years. The total expenditure on the education of the physically handicapped was Rs.4?,694 in 1956-57 which rose to Rs.2,?2,234 during 1966-67 and during 1979-80, the budget estimates were Rs.22,95,000 under plan and Rs.44,15,000 under non-plan scheme. This indicates that there has been greater attention to the welfare of the physically handicapped in Karnataka. Even though there is considerable increase in number of institutions, teachers and students, the increase is insignificant as the number of disabled children (about 9 lakhs) need to be served in the entire state, with necessary education and vocational training.

The course of study provided in the institutions for the Blind are similar to those of the normal (non-handicapped) children but through Bharati-Braille. The deaf children are provided with General Education which includes lip reading, auditory training, speech therapy and subjects such as English, Mathematics, Science, Social Studies, Hindi and Kannada.

Craft subjects such as Drawing and Painting, Paper Work, Handicrafts, Tailoring, Press Work, Assembly Work form part of the course. Physical Education forms part and parcel of the curriculum for these disabled children. Majority of the schools are residential. Very few institutions entertain day scholars. Many of the institutions run by voluntary agencies get financial assistance by the Government. These institutions are governed by the rules and regulations of the Department of Public Instruction as well as the Department of Women and Children's Welfare in Karnataka.

There are nine associations in Karnataka working for the welfare of the disabled persons, three of them are meant for the welfare of the blind, three for the deaf and three for orthopaedically handicapped persons. Main educational activities provided by these welfare associations are running special institutions for the children from pre-primary to secondary level of education. Some of these associations are affiliated to the state and some are affiliated to national associations for the respective handicapped categories. These welfare associations provide vocational training to the children as well as adults and often assist in their rehabilitation and job placement. After a brief historical review it becomes imperative to spell out the need for the study as well as objectives of the study.

Need for the study:

In order to speed up or expand the educational services to the disabled children it is important to probe into the existing facilities and the problems faced in rendering these services to the disabled children. As the role played by the teachers, parents, disabled children in the education process of the disabled is important it becomes a felt need to study the problems faced by heads of special institutions, teachers teaching the disabled children, disabled students in special institutions and their parents. The problems faced by welfare associations which conduct special schools for the disabled children needs to be examined. The study of this kind helps to get insight into the global approach to the problems faced by all those involved with the education of the disabled children. Thereby a scheme for improvement or expansion of special education can be drawn. An official committee was constituted in 1973 to study the problems and programmes of the physically handicapped.

The committee gave recommendations after interviewing persons involved in the field of special education. This was a pioneering effort; conducted over a short span of time to fulfil the requirements of the Government, it gave vent to the need for the present study to examine the programmes and problems of the education of the physically handicapped.

Objective of the Study:

(1) To make a survey of special institutions catering to the educational needs of the physically disabled children in Karnataka.

(2) To study the problems faced by the heads of the special institutions, teachers, teaching the disabled children, students studying in special Institutions, and the welfare associations offering educational courses to the disabled children.

( ) To suggest guidelines in the light of the problems faced by various respondent groups so as to develop suitable programme for disabled children in Karnataka.

Limitations of the Study:

This study mainly concentrates on the educational facilities offered in special institutions meant for the blind, the deaf and dumb, and the orthopaedically handicapped children in the age group of 6-18 years and also welfare associations working for the blind, deaf and orthopaedically handicapped persons.

Review of Related Studies:

Many researches have been conducted in varied dimensions regarding the problems of the education of the disabled children. Some of them have been developmental

in nature, some others are in the area of psychological problems of adjustment, language development, social development, emotional development and cognitive development among the blind, the deaf and hard of hearing and physically handicapped children.

Studies by Wright Beatrice (1960), Sheridan (1965), John (1966), Sheila Hewelt (1970) and others have made an attempt to study the problems of handicapped children whether at school, or at home, or in peer group settings. Most of these studies emphasize on parental education, teacher awareness to the problems of handicapped children and the need for suitable environment at school.

Another set of studies by Gearheart (1967), Bereiter (1967), Abel 91958), Outsforth (1958), Johnes (1963) and Quigley (1965) have studied the problems faced by the disabled children in specific areas of studies as well as specific problems of visually handicapped, hard of hearing, deaf and mentally retarded children.

In Indian periodicals, we find several articles on disabled children. Sexena, Surendra Saini, Seetharam, Krishna Iyer, Jayawardhan, Dr. Vedaprakash Verma, B. Sharma, D.P. Agarwal and others have examined the problems of education of the disabled in a wider perspective and have emphasized the need for integration of the disabled with normal children, need for parental education, a bill of rights for the disabled, with normal children, need for parental education, a bill of rights for the disabled, need for early detection and prevention of the handicap and the need for special aids and equipments for teaching the blind, the deaf and dumb. In Karnataka, welfare associations working for the welfare of the blind, deaf and dumb and physically handicapped often publish reports, bulletins and news items which highlight the problems faced by the welfare associations, teachers

students in specific fields. The official committee on the problems of the physically handicapped appointed by the Government of Karnataka examined the existing facilities for the disabled and identified certain areas of problems such as training of teachers, need for integration of the disabled children with normal children, absence of grant in aid code for special institutions, lack of awareness among parents, etc.

Plan and Procedure:

The term physically disabled refers to the blind, the partially sighted, the deaf, the hard of hearing and the orthopaedically handicapped i.e. with an impaired leg or arm.

Sample:

The study covers 6 categories of respondant to secure information regarding the problems faced in the education of the physically disabled children.

(i) Heads of special institutions are the superintendents of the institutions who look after the entire administration and organisation and the day to day activities of the institutions. Fifteen heads of the institutions were covered in the study.

(ii) Teachers: There are about 105 teachers working in special institutions in the entire state, of which 50% i.e. 52 teachers were included in the study. The sample covered male/female teachers as well as handicapped/ non-handicapped teachers.

iii) Students: Children above 12 years of age studying in special institutions were included in the sample. Age 12+ was insisted upon for the following reasons.

1) Children above 12 years can comprehend the questions and able to communicate their ideas properly.

2) Overaged children are available in lower classes too since the age for admission of the physically handicapped children is not strictly adhered to as in the case of normal non-handicapped children. The study covered 470 students (B: 233, D: 225, O:12) (irrespective of the standard in which they studied) which was about 50% of the total student population attending special institutions.

iv) Parents: Parents of these children who were studying in special institutions were included in the sample because most of the schools are residential, parents were scattered in different rural parts of the state and so only 40 parents could be covered in the study.

(v) Welfare Associations: Which run special institutions for their category of handicapped children were included in the sample because a few members of these associations help look after the administration and organisation of schools maintained by these associations. Nine such members were covered in the sample to represent their respective associations.

vi) Experts: Those who are directly or indirectly involved with the education of the physically disabled children were considered in the sample. Six such experts were selected for the sample. These experts not only act as resource persons for the welfare programmes of the disabled persons but are also specialised in the field of education and vocation of the disabled persons. Some of them are themselves physically handicapped and are rendering educational services to the disabled children.

Table II presents the sample covered in each category of respondants selected for the study.

TABLE II

(Sample)

Sample Categories.	Heads of Institutions.				Teachers				Students				Parents of students.				Welfare Associations.				Experts.			
	B	D	O	T	B	D	O	T	B	D	O	T	B	D	O	T	B	D	O	T	B	D	O	T
Number Covered.	9	4	2	15	26	22	4	52	233	225	12	470	40	3	3	3	9	2	2	2	6			

(b) Tools of Enquiry: Questionnaires and interview techniques were developed and used to secure the responses various categories of respondent groups. Wherever it was necessary interviews were taped to secure information regarding the problems faced in the education of the physically disabled children. Questionnaires carried two sections. Section I dealt with general information; Section II focussed mainly on the problems faced in the education of the disabled children.

(c) Results: Results of the survey of the existing educational facilities are presented briefly in the following paragraphs.

Out of the 18 special institutions which rendered educational facilities to the physically handicapped children, only 15 responsded to the institutional schedule and provided the necessary information for the study. Table III presents management-wise distribution of special institutions.

(Table III on the next page)

T A B L E - III

Management-wise distribution of institutions.

Sl. No.	Management	Special Institutions for B	D	O	Total
1.	Central Government	I	1	-	2
2.	State Government	5	2	1	8
3.	Voluntary Agencies i) aided	4	-	-	4
	ii) unaided	-	1	-	1
	Total	10	4	1	15

Table 3 reveals that there are more state managed institutions, and these are spread over the districts of Bangalore, Belgaum, Mysore, Gulbarga, and Chitradurga, whereas voluntary organisations run special institutions spread over the other districts namely Dharwar, Tumkur, Bangalore and Kolar. Two of the institutions entertain only day scholars whereas all others are residential ones.

These institutions conduct courses from pre-primary to secondary levels. Two institutions run pre-primary classes; 5 institutions run only lower primary classes; 5 institutions run classes from I standard to VII standard; 3 institutions have classes from I to X standards.

There are trained and untrained teachers in these institutions; 50% of them are themselves handicapped teaching respective category of handicapped children. Normally teachers secure a diploma/certificate from institutions, which are normally located outside the state, training them for the specialisation in teaching disabled children.

Table II presents the sample covered in each category of respondents selected for the study.

_ T A B L E _ _II _

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Sample Categories.	Heads of Institutions.				Teachers				Students				Parents of students.				Welfare Associations.				Experts.			
	B	D	O	T	B	D	O	T	B	D	O	T	B	D	O	T	B	D	O	T	B	D	O	T
Number Covered.	9	4	2	15	26	22	4	52	233	225	12	470 40	3	3	3	9	2	2	2	6				

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These institutions conduct courses from pre-primary to secondary levels. Two institutions run pre-primary classes; 5 institutions run only lower primary classes; 5 institutions run classes from I standard to VII standard; 3 institutions have classes from I to X standards.

There are trained and untrained teachers in these institutions; 50% of them are themselves handicapped teaching respective category of handicapped children. Normally teachers secure a diploma/certificate from institutions, which are normally located outside the state, training them for the specialisation in teaching disabled children.

The subjects taught in these institutions are general subjects meant for the normal non handicapped children. In the case of blind children the medium is through Bharathi Braille. Medium of instruction in 13 institutions is Kannada and only in two it is English. Students take up public examinations at the end of their school education along with the non-handicapped children Provisions are made for the services of readers and scribes for blind children and orthopaedically handicapped children who cannot write. There have been cases of successful completion of the SSLC examination by blind and deaf students. Besides general education courses, craft subjects are taught in each institution. Vocational subjects like tailoring, weaving, carpentry, knitting, mat making, basket making, candle making cardboard box making, press and assembly work are taught in the special institutions.

Two institutions which are attached to vocational training centres, have a special programme of vocational training after school hours, wherein children learn lathe work assembling of machinery parts, printing, blinding, carpentry, making of toys and pay materials, weaving etc.

Physical education forms part and parcel of the course. In two institutions an integrated system of education is being tried with the combination of abled and disabled children; these schools are experimental in nature.

The aided institutions get financial assistance from the respective parent organisation for the purchase of books, equipments and special aids for teachers as well as disabled children.

Problem Areas in the Education of the Physically Disabled Children:

The problem areas may be approached in many ways. In this paper no attempt is made to discuss all the myriad of possible problems, but rather focuses attention on a

limited number of problems which are some what representative of the total range of problems. The problems are detailed out as follows:

1) Scope for Special Education: The scope for Special Education has been a controversial issue for many years. What categories of disabled children should be covered under special education is still an unanswered question. But consensus has been arrived at by the educationists, planners and social service workers that the special education programme should cover services for the blind, deaf, dumb and orthopaedically handicapped and the mentally retarded. In what way special education should really be special in the real sense of the term remains unnoticed by those involved with the education of the physically disabled children. When the physically disabled children are put along with the normal non-handicapped children in the integrated system of education, what special arrangements, equipments and other facilities are required are not yet specified by anyone dealing with the system. Special institutions which cater to the educational needs of these children come under two different departments in Karnataka, namely, Department of Public Instruction and Department of Women and Children's Welfare. The scope of special education in special institutions is not clear cut. Should the scope for special education limit itself to educational services alone or whether rehabilitation, job placement and vocational training also be included in the programme ? So, the present study made an attempt to survey the programmes which come under purview of the special education in special institutions. In majority of the cases special education was referred to as the educational courses in the schools. Only in a few cases heads and experts felt that special education should include vocational and educational training. Almost all

the heads of the special institutions felt that the services of the Psychiatrists, Occupational and physical therapist were in necessity. Due to lack of financial assistance, these services were not offered in these institutions. Inclusion of Carrer Master's course was important in the special education programme to make the children aware of the avenues open to them after the end of the course according to the experts, heads, teachers and parents.

2) Curriculum and instructional Materials: Related problems such as the need for change in curriculum flexibility in curriculum etc. were predominant among teachers/heads and experts in the field of education for the blind and deaf children. Lack of books in braille, need for braille library, need for printing press for braille materials were the problems expressed by almost all the members of the respondant groups. Lack of special aids, equipments, science and geography models were other problems faced by teachers in special institutions. Teachers teaching the deaf expressed difficulty as they had to learn more than one language as there was no one language that could be adopted as the medium. Many parents, students, experts and welfare associatio members suggested that a Carrer Master's course to be introduced in the special institutions, non-availability of madens' services and scribe services were the other problems faced by the students.

3) Training of Teachers: A number of problems persist in the general area of teacher training programmes for the teachers in the special institutions. The teacher training programmes for teachers of normal children do not include any specialisation paper to cater to the needs of teachers in special schools. Hence one or two

institutions have started on the job training programmes to train teachers within the special institutions. Hence one of the problems faced by special institutions is dearth of teacher education programmes in the state.

Heads of the institutions and Associations have expressed the problem of inadequacy of trained teachers available to teach the blind, deaf and dumb. The other problems faced by teachers are non-availability of referesher courses to make them aware of the new teaching techniques and usage of special aids which are is use in other similar institutions outside the state.

4) Administration: Many of the problems faced by heads of the institutions are delay in according sanction and recognition of the school, delay in receiving grants, aids and equipments under the grant-in-aid code is a severe problem expressed by heads of the institutions and welfare associations conducting special schools with financial assistance from the State Government. In the case of private institutions, the heads of the institutions feel that there is lack of co-operation by the management and inadequate grants to meet the contingency expenses. Majority of the heads of the institutions feel that the inspection of schools should be conducted by Department of Public Instruction rather than Department of Women and Children's Welfare. One of the problems expressed by a head of the institution for the blind is that the examination of the blind children should be done by trained people who can understand the difficulties faced by blind students. Some of the institutions have stated that they need other non-teaching staff and need for grants to conduct experiments and take up research projects regarding the problems faced by disabled children.

5) Parental Education: It is revealed that there is lack of awareness among parents about the educational facilities and scheme of scholarships, education of the parents is a major task in the education of the disabled children. The first task is to provide the parents with complete, accurate information about the disability of the child and the methods to reduce the handicapping factors of the child like educational and social handicaps at later stages of development.

The second emphasis involves developing parents as an efficient teacher at home; parents should be made aware of means of achieving certain developmental goals and child rearing practices to suit the needs of the handicapped child and thereby to avoid the dangers of overprotection.

6) Co-ordination among various departments dealing with the education of the physically disabled:

Majority of the heads of special institutions have stated that there is a delay in communication sent by departments at state, district and local levels. Also lack of awareness about definite roles played by the Department of Women and Children's Welfare, Department of Public Instruction, District Association For the Welfare of the Disabled have resulted in frustrating the administrators of special institutions. Some of the heads have opined that the state and local governments should work out large range of programmes which may help in allocating resources of the state as well as local areas which may work advantangeously to serve the educational needs of the handicapped children. Besides, the other problems faced by the heads of the special institutions are delay in sanctioning and receiving of grants for school building, special equipment and special aids. This delay unnecessarily acts as an obstacle

to the ongoing special education programme. Thus for the smooth running of special education programme for the handicapped children there is continuous and on going fiscal support. This needs decentralization of various funding sources for the special education programme. Many of the teachers have felt the need for inspection by the Department of Women and children Welfare.

7) Participatory activities by the Welfare Associations

The welfare associations meant for various categories of handicap have varied aims and objections to fulfil. The role played by these welfare associations in the educational programme for the disabled are not clear cut. Welfare associations which run special institutions have varied administrative, academic and financial problems. Absence of a common umbrella for all these welfare associations have led to varied problems with regard to the conducting of courses for the disabled children and adults. Some associations are affiliated to State Associations, some of them are affiliated to national associations. Thus creating a gulf between the aims and objectives pertaining to the educational activities to be carried out for the disabled. Lack of co-ordination among the various associations has resulted in offering of very divergent courses at school level.

Since there are vari d opinions on the type of education to be imparted to the disabled , need for co-ordination among the various welfare associations catering to the educational needs of the disabled children is urgently called for.

(8) Facilities

Need for transport facilities to avail of the educational facilities offered at special institutions is a major demand by students, parents and teachers. The orthopaedically handicapped children especially then need special transport facilities to commute from residence to the institution; since the mobility of blind children is a problem many an institution for the blind have been made residential. In the case of deaf children, mobility is not a problem but they feel they should be given concession to travel by local transport or school transport. Majority of children in special institutions which are residential have expressed the need for proper clothing, toilet, food and pocket money to meet the bear necessities in day to day life. The facilities such as lack of Braille text books, slates, readers services, scribe services are the problems faced by blind students where as orthopaedically handicapped children have expressed the need for special arrangements at general schools as well as supply of special aids by the govt. at lower rates. Parents in rural areas have expressed the view that limited number of special schools in rural areas and lack of high schools for children who complete primary education at local institutions. Lack of higher education programmes, correspondence courses in brailler are the grievances of the blind students, teachers. Many teachers and parents have felt that the age of admission to schools for the disabled children should be flexible.

They think that late admission to the school may be made a statutory provision. Most of the parents, teachers and members of the welfare association feel that there should be integration of the disabled with the normal children.

(9) Research

Research related to the educational needs of the disabled children has become a dire necessity in our country. Research pertaining to the efficacy of various teaching methods, Organizing patterns, advantageous age of school entrance, class size, teacher pupil ratio desire greater attention. Research into the problems of language development, speech development and teacher characteristics for varied categories of handicapped children become important. Also the results of the studies conducted in the country as well as elsewhere needs to be communicated to administrators, teachers and parents. Research in-to the problems of integration demands attention.

(10) Finance

The problem of fiscal support of the State government for special education has been there for considerable period of time. Absence of special grant-in-aid code has led to the problem of starting of new schools for the disabled children. While primary and secondary education have been made free for normal children, the disabled children have to contribute for their education/towards boarding and lodging facilities and towards transport facilities to reach the special institutions.

This is because there are few schools run by the government. As the education of the disabled is a costly affair, and special education has been vested mostly with voluntary agencies with financial assistance by the government special education has been accessible to a handful of children in urban and rural areas. Parents have expecially expressed that the need for financial assistance by the government for the purchase of special aids and also concessional rates for the purchase of special equipment to their children.

Conclusions

The study identified the following areas of problems faced by heads of special institutions, teachers, teaching the blind, deaf and dumb, orthopaedically handicapped children, students in special institutions and parents of the students in special schools. Welfare associations running the special institutions also spelt out a few problems regarding the education of the handicapped. The areas indentified are: (1) scope of special education (2) curriculum and instructional materials (3) training of professional personnel (4) parental education (5) role and relationship among the various departments dealing with Education of the handicapped (6) participating activities of the Welfare Associations (7) Research and (8) finance.

Suggestions for future action:

In the light of the above problems indentified, following suggestions are made:

(1) There is need for spelling out clearly, the scope of special education so as to avoid controversies and complications. A committee could be appointed to look into this problem and offer specific dimensions to be covered under special education programme.

(2) A special grant in aid code may be prepared to make the special education programme more intensive.

(3) A scheme for a special teacher education programme may be drawn to cases to the training programme of teachers teaching the disabled children as well as to those who are interested in taking up the profession.

(4) Need for parental Education is of utmost importance; wide publicity through mass media is needed to make the public utilise the educational facilities offered to the physically disabled children.

(5) The State government can help in the preparation of the text books in Braille to help the blind children. It may also start a press to serve the blind children in the State.

(6) A detailed research programme can chalked out to go into the depth of the problems faced by all those involved in the educational programme to get real insight into the intensity of the problem in each area.

(7) Government and public participation can be sought for solving the problems regarding transport, reader services library services etc.

(8) At least during th· year of the disabled an attempt to cover more disabled children should be made; there can be more grants released for voluntary organizations to start and run special institutions The general consensus of problems fac.d by heads, teachers students, parents, experts and welfare associations are as follows:-

(1) Need for special Education programmes in rural areas.

(2) Need for special grant-in-aid code for schools for physically disabled children.

(3) Need for parental education.

(4) Need for special teacher training programme in the State.

(5) Need for research into the problems of the disabled children.

(6) Need for text_books and Braille equipments for blind children.

(7) Need for special equipments in school for deaf children.

(8) Need for expansion of schome of scholarship.

(9) Need for adequate and suitable transport, medical and hostel facilities.

(10) The responsibility of Special Education programme for the physically disabled children should be vested with the Department of Public Instruction.

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(Source of Data: Project conducted by the Education Unit, ISEC, during 1980-81).

1.2.0 A SURVEY OF THE WORK DONE BY VOLUNTARY ORGANISATIONS FOR THE EDUCATION AND TRAINING OF THE PHYSICALLY HANDICAPPED IN KARNATAKA.

BY

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Importance & need for work for the welfare of the Disabled:

The disabled belonging to all the categories need special education and training to become self supporting and not be a burden on society.

Earlier they were considered to a blot on society and were not only ignored but also ill-treated. In some Greek states a physically mal-formed or defective child was allowed to die of exposure and starvation. Now the situation has changed, there is growing awareness regarding the needs of the disabled in terms of education and rehabilitation.

1981 being the International Year of the Disabled should evoke greater awareness among the nations of the world in giving equal opportunities to the disabled.

Voluntary Organisations and Institutions working for the Education and Welfare of the Physically Disabled in Karnataka:

There are ten voluntary organisations and nineteen institutions for the physically disabled in Karnataka. The voluntary organisations play a very significant role in the education and welfare of the physically disabled.

No research study has been done to assess the extent of work done by these organisations except the routine annual reports brought out by the Women and Children Welfare Department, which is not very comprehensive. Hence, the necessity for this research study. Specially this year being the International Year of the Disabled this study will be more meaningful.

The Problem:

"A survey of the work done by voluntary organisations for education and training of physically disabled in Karnataka".

Objectives of the study:

1. Assess the nature and extent of work done and its relevance to the needs of the disabled.
2. To analyse the various kinds of needs of the disabled and to find the gaps not yet filled by the organisations.
3. To examine the problems faced by voluntary organisations in carrying out their work.

4. Extent of benefits accruing to the really need, disabled.

5. To indicate to the public and the government the areas in which special work in education, rehabilitation and training needs to be done.

6. To examine the extent of support given by the Government and public to the voluntary organisations.

Methodology:

A case study of each of the voluntary organisations.

Tools:

1. Documentary analysis.

2. Report analysis.

3. Personal interviews of office bearers of the organisations.

4. Questionnaire for the office bearers of the organisations.

Analysis:

Descriptive analysis of the cases.

Sampling:

Nine Voluntary organisations in Karnataka.

Case Studies of Voluntary Organisations in Karnataka:

Case I:

National Association for the Blind (Karnataka Branch) Bangalore.

(I) Aims and objectives:

(i) To look after the welfare of the blind in the state of Karnataka.

(ii) To take steps to educate the blind in the State.

(iii) To establish or help in establishing institutions, workshops and homes for the education, rehabilitation, training, employment, after care and welfare of the blind in the state.

(iv) To conduct research into the causes of blindness and to collect statistics concerning the blind in the state.

(v) To take steps to mobilise public opinion to further the cause of the welfare of the blind in the state.

Activities:

I. Survey:

The Development Officer of the society visits eye camps, whenever organised, and collects details about the blind individuals. Details of 350 blind persons have been collected so far.

II. Education and Training:

(i) Blind persons are sent to Mount Abu for rehabilitation and training.

(ii) Blind persons are also sent to Bombay, Poona and Madras for technical training.

(iii) Vocational training is arranged in specialised institutions of the N.A.B.

(iv) Travel Assistance is given.

(v) Scholarships for students and talking books have been obtained for blind students.

(vi) Attempting to blind a library, in braille for circulation among the blind.

(vii) They produce and distribute braille kits to the blind students.

Employment:

They have a full time Employment Officer. They have over 200 blind on their register. So f · jobs for 68 blind persons in public and private sector and small scale industries in Karnataka have been found.

Self Employment:

They have taken up a project on recaining of chairs for government departments, post offices, banks etc. About 20 blind persons are working under this project earning about ₹.200/- per month.

Financial Assistance:

A monthly subsidy of ₹.25/- as house rent allowance for those whose salary is less than ₹.200/-.

Mobility:

There are two trained Mobility Instructors for mobility training of the blind.

In-Plant Training:

In-plant training facilities have been secured for seven blind persons in I.T.I. and Kirloskar.

New Activity:

A non-residential Rehabilitation and Basic training Centre for blind men in the age group of 16-40 years exists this has 20 inmates. They are taught weaving, carpentary, and recaning. Training in light engineering work is intended to be introduced shortly.

Case II.

Dakshina Bharat Mahila Sangha, Bangalore:

Established in 1960 with the main aim of promoting cultural and literary activity among women. Recently it has becomes more and more involved in social work in the rural areas. They have started a work training centre for blind women. It was established in 1978 with assistance from the Department of Women and Childrens' Welfare and Government of India. Training is provided to blind women in weaving and re-caning. They have 16 blind trainees at peresent. A specially trained instructor is in-charge of imparting training to them. They get orders for recaning from Government offices and private firms. Fabrics like swabs, napkins, bedsheets, towels etc. are manufactured and sold. The N.A.B., Karnataka Branch assists in getting orders.

Case III:

Karnataka Welfare Association for the Blind, Bangalore:

This Association professes to promote the education, economic security and social integration of the blind at all levels.

(1) Promote education of the blind at all levels.

(2) To encourage and help blind persons to pursue higher studies.

(3) To provide library facilities and teaching materials to blind persons.

(4) to encourage integrated system of education of the blind at all levels.

(5) To arrange training both vocational and professional for blind persons.

(6) To provide mobility and orientation training.

(7) To take all possible steps to develop the potentialities and capacities of the blind persons and promote the welfare of the blind in all possible ways.

Projects and Programmes:

(a) The Home Teaching Project:

Is the first of its kind in the state started in 1975. It has benefitted a number of blind persons of all ages with a single home teacher.

Under this scheme nine blind persons have been helped to take up studies under the Integrated Scheme of Education (i.e. blind persons studying in normal schools) after acquiring certain necessary basic skills like reading and writing in Braille.

(b) Orientation and Mobility Training Project:

Was started in 1974 with the following objectives:

(i) Making blind persons independent, in their mobility by making systematic use of the white cane.

(ii) Making the blind persons aware of the requirements to lead an integrated life in society.

(c) Placement and Employment Project:

(i) This project was started with a view to providing economic opportunities for blind persons and to promote their economic security.

(ii) Over 30 blind persons were helped to secure jobs in open industries and educational institutions all over the state.

(d) Work Training Centre:

Was started in 1978 on a modest scale. Training is given to blind persons in re-caning of chairs and envelope making. Helping them to earn their livelihood by providing work on contract basis. So far 15 blind persons have benefitted from this scheme.

(e) Loans and Financial Assistance:

The organisation has been giving interest-free loans and securing financial assistance, whenever possible, for deserving blind students.

(f) Preparation of books in Braille:

The editorial sub-committee of the organisation has undertaken the selection, preparation and distribution of books in braille, at all levels.

(g) Awards:

It has set-up awards for outstanding blind students at the primary, secondary and pre-university levels.

(h) Concessions and exemptions sought from the Govt.:

(i) Exemption in the city road transport service and 50% concession on long route services of K.S.R.T.C.

(ii) Exemption from the payment of sales tax on Braille watches.

(iii) Exemption from the payment of professional tax.

(iv) Exemption for blind students in the VII and X standard (public examinations) from map drawing questions and permission to answer only theory questions.

(v) Distribution of text books in Braille, to all blind students by the Department of Text-books, Government of Karnataka.

(vi) Reservation of 2% of jobs for the physically handicapped.

(vii) Manufacture of Braille watches by H.M.T. Watch Factory, Bangalore.

(i) Institutions and Training Centres for the Blind:

A blind school has been started at Siddaganga Mutt, Tumkur. It has 15 students and one teacher. It is a partially residential school and is showing good progress.

(j) Financial Sources:

(i) Annual subscriptions from members.

(ii) Donations from philanthrophic individuals and organisations.

(iii) Funds raised by conducting benefit shows, cultural shows etc.

(iv) Grant from the State Government.

(k) Future Plans:

(i) A work-training centre for the blind

(ii) A Braille library with a production unit attached to it.

(iii) Coaching classes for blind students taking up the S.S.L.C. and other public examinations.

(iv) Organising a regular scheme for providing a voluntary reading service to blind students as well as blind persons.

Case IV:

Dharwar District Association for the Blind, Hubli:

Started in September, 1979.

Aims and Objectives:

(i) To help the partially sighted to gain full sight.

(ii) To perform cornea grafting for those whose blindness is curable.

(iii) To open a residential educational-cum-training centre for the blind who will be provided with: a) Free boarding and lodging, b) free coaching and books, c) Facilities for teaching music - vocal instrumental, d) handicrafts - cane work, candle making, plastic work etc., e) free medical aid.

The President of the Association is a well known ophthalmologist of the area and hence his keen interest in correcting sight defects. The Association has been allotted about 2 acres of land by the Government. It has a number of local philanthrophic persons as its members and office bearers who are willing to do their best in bringing up

the Education and Training Centre alongwith obtaining grant from the State Government.

Case V:

National Society for Equal Opportunities for the Handicaps (Karnataka Branch):

It takes care of multi-disciplinary handicaps like blind, deaf, orthopaedics, p paraplegics, cerebralpalsied, mentally retarded and Hausen's disease cured.

The emphasis is not on high lighting the disability but on teaching the handicapped to gain a sense of human dignity.

Child Guidance Service:

The needs of the handicapped child are:

(i) Proper assessment of the disability by qualified experts at the earliest stage possible.

(ii) Rehabilitation with focus on how to retrieve its functional capabilities to the extent feasible.

(iii) Opportunity for educational facilities that the able-bodied child gets so that the handicapped child grows-up equipped to earn his livlihood.

(iv) Parents understand and learn to appreciate the child's reduction in able-bodied status and thereafter adjust themselves to accommodate the disabled child in their home.

(v) Recreational opportunities that will motivate the child's approach to living in a positive manner.

How Naseoh Meets These Needs of the Handicapped Child:

(i) A panel of highly qualified medical advisors make a thorough examination and advise modes of treatment and rehabilitation.

(ii) Prompt action according to medical advise.

(iii) Every child to get scholing, if possible.

(iv) Help parents to review the situation of having a handicapped child in the home.

NASEOH has a total membership of 308.

Activities:

1. It has over 900 candidates on its register which includes literate, illiterate, skilled, semi-skilled, unskilled etc.

2. 200 persons have been successfully placed.

3. Medical and educational rehabilitation and pension for the handicapped.

4. An integrated camp for children of all types of disabilities for three days, first of its kind held in India.

5. First ever national sports for five categories of the handicapped conducted on the lines of Olympics which included over 800 participants from 12 states.

Case VI:

The Association for the Physically Handicapped, Belgaum:

Started in 1972. Has a membership of three hundred.

Aims and Objectives:

1. To evoke a sense of charity in the minds of the people with regard to the physically handicapped so as to

   a) provide free boarding and lodging to the handicapped destitutes.
   b) provide free books and uniforms to the economically backward handicapped.
   c) provide medical aid to the handicapped in the lower income groups.

2. Promote education of the physically handicapped and rehabilitate them by starting training centres for giving vocational training like spinning, weaving tailoring, embroidery, poultry farming etc.

3. To provide orthopaedic aids and treatment like hydro therapy, massage etc.

4. Help in job placement.

5. Publish periodicals and pamphlets to make people aware of the problems of the handicapped and also the work being done by the Association.

6. Make the handicapped economically independent.

Activities:

1. Started a vocational training centre in 1974. It has three units, a) candle making, b) book binding, c) tailoring.

Here bulk orders are taken on a contract basis from the municipal corporation, contonment board, industrial houses, air force, libraries etc.

2. Annual get together.

3. Annual sports and competitions.

Future Plans:

1. Have their own building with hostel facilities for the members.
2. Free medical aid.
3. Educational facilities - school with playground.
4. Industrial centre with employment facilities for the handicapped.

Case VII:

Janapada Seva Trust, Melkote:

Established in 1960. Its activities are based on Gandhian thoughts. They rely more on the support of the people. The state help available for the physically handicapped children is negligble.

It runs a child welfare centre called "Karuna Gruha". Here emphasis is laid on the integrated development of the Child's personality. Free medical aid and nutritious food is also made available to the children.

It has undertaken an activity called "Hosa Jeevan Dari" (Way to New Life). It is a pioneering work in that the orthopaedically handicapped will get an opportunity to be integrated with society by taking up agriculture and agro industries. It also includes a centre for medical rehabilitation which will include physiotherapy. For this scheme, the organisation has purchased 22 acres of land.

The organisation also works for the welfare of socially handicapped women. So far about fifty have been given help and at present five women are being trained in printing.

The organisation has a wing for youth welfare. They intend taking up some socio-economic programmes to help solve the unemployment problem among the educated youth.

Janapada Seva Trust is an associate member of the Association of Voluntary Agencies for Rural Development.

The inmates make good greeting cards and mats which are for sale and the proceeds of the sale are added to the organisation funds. The one aspect that is very striking here is the simplicity and smooth working of the Karuna Gruha.

Case VIII:

Association for the Deaf, Bangalore:

Established in 1961.

The present membership is two hundred fifty. A major project taken up by them is the construction of a Technical Training Centre for the Deaf in Bangalore. The building complex is under construction and is progressing at a modest place.

The Objectives of the Proposed Training Centre:

1. To provide the deaf trainees with a two year technical training in recognised trades.

2. To provide the trainees with a diploma which will be recognised by the state Government.

3. To prove the deaf trainees with an integrated development course through specific leadership and personality development programmes during the two years training period.

Supportive Services of the Centre Technical Training:

1. The centre will provide technical training in some trades:

   For Boys - Welding, Carpentary, Lathe-work, fitter, Photography etc.

   For Girls - Tailoring, typewriting, Dress-making, needle-work, home science etc.

2. In the proposed auditorium the centre will strive to generate a creative consciousness among the deaf.

3. Employment Bureau to have links with the various industries and government departments to ensure maximum job placement for its members.

4. As there are no statistics available regarding the deaf in the state, a survey of all the deaf persons in the state along with their backgrounds is to be conducted.

5. Another aspect of the centre is that it will train leaders from among the deaf.

6. Sign Language Classes are to be conducted to train hearing persons to become interpreters for the deaf and help them in all aspects as no such programme exists in India.

7. The centre will try to bring parents of deaf children together to discuss their problems and solutions through a parents forum. Basic courses in child guidance will be given to the parents.

Case IX:

Anatha Seva-Asrama, Malur:

It was established in 1956. The main objective is to give shelter to the destitute and poor children, provide them with all basic facilities and give the necessary educational and vocational training. It is run on the lines of an ashram, equal emphasis is placed on physical and spiritual training. Students are grouped into batches and each batch is looked after by a House Mother.

The founder member who is also the Secretary of the Trust has dedicated his life to the Ashram and also donated all his property to it.

Apart from this, they also run a school for deaf children called "Aswini" Residential School for Deaf Children. It was started from October, 1978, with financial assistance from the Department of Social Welfare, Government of India. It has twenty pupils studying in two classes and two trained teachers.

The class-rooms are equipped with hearing equipments, teaching aids, play equipments, and divisional aids, furniture, stereo, play materials etc., it also has printing, tailoring, candle, ink and chalk making sections.

S_U_M_M_A_R_Y

1. The various voluntary organisations do not work in co-ordination with each other.
2. Job placement is not adequate, many trained handicapped are jobless.
3. In the training centres, there is no job assurance given to the trainees at the end of the training period.
4. The organisations do not cover the rural areas effectively - the disabled in the rural areas are not aware of the facilities available to them.
5. The organisations do not have direct contact with the public which they can do by calling open meetings and discussions.
6. Lack of space and funds are the main stumbling blocks in carrying out programmes and projects. Most of the time the government grant is not given on time.
7. There are no libraries, particularly for the blind.

S_u_g_g_e_s_t_i_o_n_s

1. They must extend their services to the rural areas and extend help to the disabled there.

2. All the voluntary organisations should work in co-ordination with each other.

3. They must emphasize on an integrated system of education.

4. They must have trained teachers to teach the disabled.

5. There is need for a museum and a library.

6. They must have closer rapport with the public.

7. Lack of placement and guidance services for the disabled.

8. They must also take care of the destitute disabled.

Source of Data:

Project done by the Education Unit of the Institute for Social and Economic Change, Bangalore.

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QUESTIONNAIRE FOR VOLUNTORY ORGANISATIONS WORKING FOR THE WELFARE OF THE DISABLED:

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1. Name and address of the Voluntary Organisation:

2. Date and year of Establishment:

3. Give the full details of the Organisations:

   (a) Aims and Objectives:

   (b) Rules and regulations:

   (c) Nature of activities carried out-

      (i) Educational

      (ii) Vocational:

      (iii) Rehabilitation:

   (d) Is the organisation affiliated to any association:

      Yes/No.

      If Yes, Specify:

   (e) Mention future plans for the Welfare and Development.

4. Give Membership Details:

Handicapped					Non-handicapped.				
Life	Donor	Honorary	Anual Subscriber	Total	Life	Donor	Hono rary	Anual Subc.	Total

5. Give details of Office bearers:

Handicapped						Non-handicapped					
President	Vice-President.	Secretary.	Treasurer	Others.	Total	Presi-dent	Vice-President	Secty.	Treasurer	Others.	Total.

6. Total No. of Meetings per year:

   (a) Executive Committee:

   (b) General Body.

7. Is any survey of the disabled in the State carried out?

   Yes/No.

   if yes, give details.

8. Measures adopted for enrolling of disabled children in Special Schools:

9. Give details of the extent of financial help and special aid given to the disabled.

Nature of help	No helped.

10. Does the voluntary organisation run any special institution for the disabled?

    Yes/No.

    If yes, give details.

11. Does the voluntary organisation conduct vocational training course/courses?

    Yes/No.

    If yes, give details:

12. Is help given in Job Placement?

    Yes/No.

    If yes, give details.

13. List out the activities like celebrations and symposiums/seminars conducted by the organisation.

14. Are they any publications?

Yes/No.

If Yes, mention details.

15. Give details regarding financial resources:

	Amount
(a) Collection from Members;	Rs.
(b) Donations:	
(c) Aid from Central Govt.	
(d) Aid from State Govt. Funds raised through:	
(e) Film shows:	
(f) Exhibitions:	
(g) Sale of products:	
(h) Entertainment Programmes:	
(i) Any other, specify.	

16. Problems in carrying out foll activities:

(a) Educational:

(b) Vocational

(c) Job-Placement.

17. Views regarding-

(a) Educational needs of the disabled.

(b) Vocational needs of the disabled.

18. Give suggestions for:

(i) Identification of the Disabled in

(a) Rural areas -

(b) Urban areas -

(c) Slums -

(ii) Facilities for education:

(iii) For providing vocational training.

(iv) For job placement:

(v) Any other:

*Kaushik/P.D./

PLANNING FOR THE PHYSICALLY HANDICAPPED

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ABSTRACT

In India we see only the beginnings of an adequate service for the handicapped, which the spirit of the Constitution enjoins upon the Government and voluntary agencies. The work has to be considerably strengthened on all fronts, right from the quantification of the problem in its various facets. Provision of the requisite services to the handicapped will require a vast organisation, considerable amount of technical equipment, a technically trained cadre research support and large funds. Many of these require time. Funds also are very limited in a developing country and a judicious mix of welfare and investment is inevitable. nor it the lobby of the handicapped very strong in a democracy. The task can, therefore, be accomplished only through a phased long-term planned effort. Steady pressure has, however, to be kept-upto ensure that the priority given to the handicapped does not slide back. Considering all these factors and the fact that the work started from scratch after Independence, the Five-Year Plans have not done badly and the step-up in the Fifth and the Sixth Plans especially, is appreciable. More important than the increased outlays are the new directions in which policy for the handicapped has been oriented: help to the

handicapped was an investment not merely a welfare activity; preference for the integrated school rather than the exclusive school; the plan to look at the problem of medical treatment, training, placement and social assimilation of the handicapped in the general stream of life as an integrated problem; etc. These are significant beginnings and it is hoped that as the economy becomes stronger and organisation improves, the services to the handicapped will come into their own.

INTRODUCTION

In a Welfare State, with the commitment to the last rung of the ladder the physical, economic and mental rehabilitation of the handicapped assumes special importance. Article 41 of the Indian Constitution lays down that the State shall, within the limits of its economic capacity and development, make effective provision for securing the right to work, to education and to public assistance in cases of unemployment, old age, sickness and disablement, and in other cases of undeserved want". A little further, Article 46 adds that the State shall promote with special care the educational and economic interests of the weaker sections of the people and shall protect them from social injustice and all forms of exploitation. In a developing democracy, with constraint of resources and pressure from the more vocal sections of society, the problem may be pushed in the background. But as the economy stabilises and the welfare aspects become more important, the rehabilitation of the handicapped is bound to come into its own. For it will

be the test of the democratic conscience and its professions of welfare. From the purely economic point of view, it is not wise to leave a large number of frustrated people as a burden on society, especially when the majority of them can become, with little assistance well adjusted and economically productive. The Prime Minister, Indira Gandhi, while inaugurating the Fourth General Assembly of the World Council for the Welfare of the Blind, held in New Delhi in October, 1969, said that the sighted world should use their insight and understanding in dealing with the problems of the blind and the handicapped. What was required was not pity for the blind, but a sensitivity, the capacity to see with the heart. This was the only was to deal with the problem on a long term basis. She further added that the problem was not only the helping of the blind to lead a better life but also that of harnessing all human resources available for the development of the country. The handicapped must be helped to stand on their own feet without having the gnawing feeling that they were a burden on society.[1]

II

WHO ARE THE HANDICAPPED?

Broadly speaking, the physically handicapped persons are divided into four main categories, namely, (i) the blind, (ii) the deaf and dumb, (iii) the orthopaedically handicapped and (iv) the mentally handicapped. Many of them are handicapped from birth and have never had a chance to function as normal individuals. Others are victims of some disease, injury or accident. But all these categories have in common a physical/mental defect, an economic handicap and special

problems of education and of social and psychological adjustment.

III

IN RETROSPECT

From charity to welfare in self-interest.

Earlier, the physically handicapped were treated as a burden on society. The joint family system provided care to such persons or they were supported by alms. No effort was made to enable them to stand on their own feet. Inadequate medical treatment, absence of proper educational and vocational training and lack of opportunities for social adjustment contributed to their sufferings. With the decline of the joint family system and the establishment of the Welfare State in India, the work has been taken up by the State or State aided voluntary organisations. Attitude to the handicapped has also undergone a change and attention to the prevention of handicape, their removal when they have occured and rehabilitation of the handicapped in the normal stream of life is now regarded as essential to the social and economic health of society itself.

Towards a well-rounded programme

Till recently, efforts at rehabilitation had been very limited. Our society traditionally supported schools for the blind and the deaf either as public or private institutions, and provided certain isolated services for the orthopaedically handicapped. The mentally handicapped did not receive much attention. Today the picture has undergone a change. Attempts are being made to develop an all-round programme that will convert as many handicapped persons as possible into

relatively active, self-dependent and productive members of society. There are two aspects of the services for the physically handicapped, prevention and rehabilitation. Medically, there is much that can be done to reduce the number of physically handicapped persons but once such damage has been done, for which medical service has no cure, rehabilitation is the only way out. The process of rehabilitation starts with education and ends only when the person has been trained for and placed in a job or work that is suitable to his capabilities. In other words, it is the process of the restoration of the handicapped to the fullest physical, mental, social, vocational and economic usefulness of which they are capable.

No reliable statistics with regard to the size of the handicapped population in the country are available. However, the estimates based on the available data are as follows:

Category	Total Population [2]	Number of Children [3]
The blind	4,000,000	400,000
The deaf	1,500,000	300,000
The Orthopaedically handicapped	4,500,000	400,000
The mentally handicapped	2,000,000	1,400,000

The actual numbers are likely to be much larger. A U.N. estimate is that the handicapped in the world are 10 percent of the total population.

Administrative set-up

After independence, the subject "Education of the Physically Handicapped" was entrusted to the Ministry of Education and that Ministry initiated many programmes to tackle this problem. The subject was given to the Department

of Social Security, known as the Department of Social Welfare since June, 1964. Now it has become a full-fledged Ministry. At the State level, Departments/Directorates of Social Welfare handle this programme..

Progress during the earlier Plans and that proposed in the Sixth Plan.

Voluntary welfare organisations have played a pioneering role in providing services for the physically handicapped persons in the country. The first planned approach, however, was made only during the First Five Year Plan when the Government of India started awarding scholarships to the handicapped as well as providing financial assistance to voluntary organisations engaged in helping them. The Second Five Year Plan increased the stress on the education, training and rehabilitation of the handicapped. The Third Five Year Plan emphasised the need to expand and strengthen the existing programmes. It also laid down that since many persons in these groups come from rural areas, it would be desirable to give a rural bias to the training and rehabilitation programmes. During 1966-69, the existing programmes continued. In the Fourth Plan beginnings were made in the integrated education of the handicapped, so that with specially trained teachers and aids, these children could be educated along with the normal children. It will be much less costly and much more effective in bringing the handicapped in the main stream of life. The Fifth Plan made a significant contribution towards the development orientation of the welfare programmes. In the case of the handicapped it meant linking up their medical aid, education, training and final placement.

The Sixth Plan drawing upon the experience of the past progress to make a comprehensive attack on the problems of the handicapped. The chief features of this approach are: emphasis on prevention through provision of nutrition and medical care; legislative measures to prevent accidents and to take care of those who still meet with them; integrated education and taking all steps necessary to make it effective; tying up education, training and placement; provision of aid and applicances to the handicapped and stepping up their production; increase in employment opportunities through reservations, persuasion of employers and setting up a monitoring system to ensure that the proposed measures are actually followed; strengthening the voluntary organisations to increase their efficiency; and, finally strengtheing the research and evaluation support to both policy formulation and programme implementation.

Progress made in regard to different categories of the handicapped is indicated below:

The Blind

There are about 127 schools and other establishments for the blind in the country. The majority of these institutions are run by voluntary agencies with the financial assistance provided by the respective State Governments. In some cases, aid is also given by Central agencies like the Department of Social Welfare and the Central Social Welfare Board.[4] According to the Education Commission (1964-66), about 5,000 blind children were in schools. Most of these institutions imparted primary education coupled with training in a few simple handicrafts. Music forms an integral part of the curriculim.[5]

One of the major projects undertaken by the Government of India for the education and training of the blind was the establishment of a National Centre for the Blind at Dehra Dun in 1950. The Centre provides a fairly wide range of services. It has:

(a) Training Centre for the Adult Blind: This was the first national institution to be established in 1950 to impart training to the adult blind in engineering and non-engineering trades. The Centre has accommodation for 150 adult men who are provided free training, boarding and lodging facilities. In 1957, a women's section was added for 25 trainees who were trained in trades suitable for women. In the light of the experience gained, the light engineering syllabus has been revised and the duration of training increased from 20 to 36 weeks. For the first time in the country, two blind men completed their training as dark-room technicians. Training has also been introduced in telephone switch-board operating, advanced music and pencil making.

(b) Model School for Blind Children: In 1959, a Model School for Blind Children was added; This is a residential secondary school for the blind children who come from different parts of the country.

(c) Central Braille Press: In 1952 the Central Braille Press was added. This is the only major Braille printing press in India to produce text books and general reading material in Indian languages.

(d) The Workshop for the manufature of Braille Appliances was started in 1954 for the manufature of simple appliances needed for the education and

recreation of the blind. The sale of appliances registered a two-fold increase. These are also exported to about 10 African and Asian countries.

(e) A Sheltered Workshop was started in 1954. The major occupations in the workshop are manufacture of woollen textiles and caning of chairs.

(f) The National Library for the Blind started functioning in 1963. It circulates Braille literature to blind readers free of cost throughout the country. It undertook a novel experiment whereby local residents were trained in Braille and requested to transcribe Braille books for the blind in their spare time. The experiment has met with considerable success.

(g) A School for the Partially-sighted Children was added for children between 5 and 12 years of age.

The Deaf

There are about 72 schools and other institutions for deaf children.[6] Most of these schools provide primary education coupled with some pre-vocational training in engineering and non-engineering occupations. The majority of these schools are privately managed but are aided by State Governments. The total enrolment is about 4,000.[7]

The Government of India established a Training Centre for the Adult Deaf at Hyderabad for imparting technical training to deaf adults in occupations like sheet metal work, fitting, electrical wiremanship, gas-welding, cutting, tailoring, carpentary etc. Admission to this Centre is open to both boys and girls. In 1962, a school for partially deaf children was started as an

integral part of the National Centre. It imparts specialised training to partially deaf children by the use of modern electronic devices.

The Ortho-paedically Handicapped

Although the orthopaedically handicapped constitute one of the largest groups of handicapped persons, it has not been possible to set up any comprehensive institute for this category of persons so far. There are about 25 institutions for the orthopaedically handicapped children in the country with a total enrolment exceeding 1,000.[8] A National Institute however, is in the process of being set up.

The Mentally Handicapped

The problem of the mentally handicapped has received much less attention than that of other categories of handicapped persons. This is due to a variety of reasons including its magnitude and complexity. There are about 51 schools for mentally retarded childfen with about 2,000 pupils.[9] In 1964, the Government of India started a Model School for the Mentally Deficient Children in New Delhi. It admits children between 6-15 years of age with I.Q. ranging between 50 and 75. A National Institute for this category has been set up but is in very early stages of development.

Other Programmes

In addition to the above, the following programmes had been under implementation:

1. Scholarships for the Physically Handicapped: The Government of India awards scholarships to the blind, deaf and orthopaedically handicapped students between the ages of 14-30 years, both for general education and technical/professional training.

2. Assistance to Voluntary Organisations: At present, voluntary effort tends to languish because of the drying up of the sources of charity. State financial assistance, therefore, becomes necessary. While it is the primary responsibility of State Governments to offer maintenance grants, the Department of Social Welfare has been giving grants-in-aid to various institutions and organisations for the handicapped for development activities as well as for undertaking new ventures.

3. Training of Teachers: Four Centres for the training of teachers of the blind have been set up at Bombay, Delhi, Narendrapur (West Bengal) and Madras. The first three Centres are run by voluntary organisations and the Department of Social Welfare pays the entire expenditure. The Centre at Madras is run by the State Government on the same terms and conditions.

4. Employment Organisation: Special employment exchanges for assisting the trained handicapped persons in finding suitable employment in ordinary industrial or commercial establishments or in the public sector have been set up in the country in collaboration with the Ministry of Labour, Employment and Rehabilitation. These exchanges are administered by the State Governments but the entire cost is reimbursed to them by the Central Government.

5. Passage of Indian Handicapped Scholars for Studies Abroad: The Royal Commonwealth Society for the Blind, London, offers scholarships to Indian students for studies abroad. Government of India pays the return passage of the scholars.

6. Institution of awards for the employees of the handicapped and the handicapped workers: In order to stimulate the process of breaking down the barriers of prejudices and helping handicapped persons towards better adjustment, the Government of India have instituted the scheme of national awards to be given annually to three outstanding employers of the physically handicapped and to three blind, deaf and orthopaedically handicapped employees considered most efficient.

The Government of India have set up a National Advisory Council for the Education of the Handicapped to advise the Government on all problems concerning the education and welfare of the physically and mentally handicapped, to assist in the formulation of new schemes for the purpose and to serve as a liaison between the Government of India, State Governments and voluntary organisations working in the field.

Financial Allocations and implementation capacity

The overall effort put in can be roughly measured by the financial allocations made in different plans. Beginning with a meagre allocation of Rs.42,000 in the First Plan, the allocations reached Rs.75 lakhs in the Third Plan. In the Fifth Plan the Central allocation alone was Rs.78 crores, which has been raised to Rs.24.40 crores in the Sixth Plan. (The State allocations are not yet available). This marks a very steep increase in allocations but considering the very low base with which we started and the overall size of the problem we can only say that we are yet only becoming aware of the seriousness of the problem and of our obligations

to tackle it. But even as it is the relatively large allocations will present a serious challenge to the implementing authorities. This challenge needs to be carefull noted. For during 1960-69 the actual expenditure was Rs.1.56 crores only against the allocation of Rs.2.24 crores. The implementing machinery has been very weak. The Sixth Plan points out the deficiencies lack of sufficiently trained and experimenced people at the planning and implementation levels; the need for exchange of personnel between teaching, planning and research institutions; absence of micro-planning; no effective tying up of education, training and employment; absence of adequate monitoring and evaluation machinery; etc. It will have to be seen how this diagnosis is availed of and remedies applied.

IV

In Other Countries

To get an idea of the task before us it is proposed to review briefly the work done in some other advanced countries, where these servides have been developed much earlier.

Welfare Services in Great Britain

In Britain, there are certain acts which constitute and extend the provisions for the rehabilitation, financial support and care of disabled people as part of the social services programmes.

Comprehensive Legislation

The National Health Service Act, 1946 and the National Health Service (Scotland) Act, 1947 made free medical

treatment available to everyone. The National Insurance Act, 1946 entitled disabled people to receive weekly benefits if they were ill or unemployed. The National Insurance (Industrial Injuries) Act, 1946 provided benefits if incapacity or disablement resulting from injury at work. The National Assistance Act, 1948 provided for monetary assistance for those in financial need. The Education Act, 1944 and The Education (Scotland) Act, 1945 consolidated and extended provision for the education of handicapped children. A Committee set up under Lord Piercy's Chairmanship in 1952 reported in 1956 that the facilities for enabling disabled people to get suitable employment were comprehensive and well established. Its recommendations gave rise to the Disabled Persons (Employment) Act, 1958.[11]

Under The National Assistance Act, 1948, local health authorities are responsible for providing welfare services to handicapped persons either directly or through voluntary organisations. These have powers to provide for the welfare of handicapped people by arranging to :

1. inform handicapped persons of the services that are available;
2. give them instruction in their own homes or elsewhere in methods of overcoming the effects of their disabilities;
3. provide workshops and where necessary, hostels where they may live;
4. provide them with suitable work in their own homes or elsewhere;
5. help them to dispose of the produce of their work;
6. provide them with recreational facilities in their own homes or elsewhere; and
7. compile and maintain registers for handicapped persons in their own areas.[12]

Services for the Blind

The earliest welfare services were those for the blind. Welfare services for the deaf developed more slowly. Each local authority provides welfare services for the blind, in accordance with a scheme approved by the Secretary of State for Social Services or the Secretaries of States for Wales & Scotland. Under these schemes, local authorities, either directly or through the agency of a voluntary organisation, keep a register of all blind people in their area. These services are aimed at promoting the general welfare of blind and partially-sighted people by ensuring that those capable of benefiting from training for employment or children requiring education services or those needing hospital treatment are suitably advised. To coordinate services in England, there are three regional associations for the blind, each composed of representatives of local authorities and voluntary associations in each region, and an Inter-Regional Committee of Regional Associations for the Blind.

The Department of Education and Science and Local Education Authorities, besides their duty of providing suitable education up to the age of 16, to all handicapped children, are also generally responsible for the further education and assessment for employment of blind young people below 18 years of age. Pupils leaving schools for the blind at 16 normally attend the pre-vocational courses. Integrated type of education has not been introduced so far, though there is a demand for this by the parents.

The cost of vocational training for the blind is met by the Department of Employment and Productivity. This Department and the Royal National Institute for the Blind have arranged for the training of blind persons in employer's establishments by specialist training officers. Training for sheltered workshops is undertaken in workshops for the blind.

Specialist Placing Services for the Blind have been set up by the Department of Employment and Productivity to obtain for them suitable employment in industry. Blind Persons Resettlement Officers have been appointed who find jobs for the blind. The Deparment has also asumed financial responsibility for the training of blind people in workshops for the blind. Industrial Advisers to the Blind Ltd., was set up in 1964 to advise on the modernisation of workshops for the blind. In the same year, a National Joint Council was set up to deal with remuneration and conditions of service in workshops for the blind.

For those blind people who cannot or do not wish to be employed outside their homes, local authorities and voluntary organisations have developed homeworkers' schemes. Under this, blind persons are helped in such matters as obtaining of raw materials, the advertising and marketing of products and in technical matters connected with the trade or procession practised.[13]

Certain concessions have been granted to blind persons. For example, registered blind persons may receive from sound broadcasting licences. They also enjoy postal concessions and special voting facilities.

Services for the Deaf

Services for the deaf are carried on mainly by local welfare societies for the deaf working in association with local authorities. Local education authorities have powers to provide education from the age of two and most schools for the deaf admit children from the age of two or three. Placement and maintenance in industry are among the most important tasks of welfare workers for the deaf, who work in cooperation with the disablement officers of the Department of Employment and Productivity but the deaf present a much more limited employment problem than the blind.

Services for the orthopaedically and mentally handicapped

The local authorities are also empowered to provide services for the orthopaedically and mentally handicapped persons. For the former, the welfare services provide help with personal and family problems, assistance in overcoming the effects of disability and the provision of aids to meet individual needs, teaching of handicrafts and help in the sale of articles made, recreational facilities etc. For the latter, local authorities provide occupation and training at training centres with the aim of developing the mind and the body to the fullest extent possible.[14]

Employment Services for the Handicapped

Employment services for the handicapped are based on the Disabled Persons (Employment) Acts, 1944 and 1958). These Acts give the Secretary of State for Employment and

Productivity various powers to help the handicapped to get work and to provide for industrial rehabilitation and vocational training.

At each employment exchange and industrial rehabilitation unit of the Department of Employment & Productivity there is a disablement resettlement officer (DRO) whose job is to advise disabled people and help them to find suitable employment. Placing people in employment is the primary function of employment exchanges. Under the Disabled Persons (Employment) Act, employers of 20 or more workers must employ a quota of registered disabled, at present 3 per cent of total staff. The Department of Employment & Productivity also operates a limited scheme for the loan of special aids to registered disabled persons who need them to take up or keep a job like a powered vehicle, special equipment or attachments. So far only two employments-car-park attendant and passenger electric life-attendant- have been reserved for the handicapped persons. Sheltered employment is provided for severely disabled persons.

Basic Research

There is increasing awareness of the importance of basic research that can give answers to many questions concerning the incidence of disability, the needs of the disabled, the adequacy of present provisions etc. A number of studies have been done in this respect. Such studies form the basis for planning services for the handicapped children and suggest preventive measures where adverse conditions are revealed.

Excess cost Principle

Welfare Services in U.S.A.

The U.S. Department of Health, Education and Welfare has a number of constituent agencies which promote and facilitate the care and education of exceptional children. The exceptional child is defined as "that child who deviates from the average or normal child in mental, physical or social characteristion to such an extent that he requires a modification of school practices, or special educational services, in order to develop to his maximum capacity."[18] Education of all children, including exceptional children, is legally and traditionally the responsibility of the respective States. Each State has within its organisational structure a state department of education and the latter usually has a bureau or division of exceptional childr . It is found that educating exceptional children, which require added services and smaller classes, is more expensive to the school system than educating an average child by mass techniques. This is one of the reasons for the slow development of education of exceptional children in public schools. To encourage school systems to organise provision for the various kinds of exceptional children, a plan has evolved whereby interested local school systems can obtain financial help from state sources to reimburse them for the difference between the cost of educating an average child and the cost of educating an exceptional child. This is known as "the excess cost principle". In other words, the local school district is responsible for educating all children, but the state will help with the excess cost over and above the cost of regular programmes.

State legislators have encouraged this movement in order to decrease costs to welfare departments. Various states have passed laws and have appropriated funds to help support special classes or services for exceptional children who can profit from remaining in the community.[16]

Education of the Blind-The integrated approach

Historically, residential type of schools for the blind was considered the most desirable type of educational facility available but later its disadvantages became apparent-routine, formality, segregation, lack of family life etc. Stress was laid on educating the blind children with sighted children, wherever feasible. The latest development is that of increasing cooperation between the residential schools and the public school system. Many residential schools now send their pupils to public high schools even though the students continue to live at the school for the blind. Public schools, in turn, avail themselves of special equipment, materials and training which are available at the residential schools.

For the Deaf.

Deaf children are taught in residential schools, day schools and special classes in city schools for deaf children. Deaf adults adjust to practically any kind of job which does not have as a pre-requisite the ability to hear. The deaf are found in professions, managerial positions and skilled, semo-skilled and labouring jobs.

The Orthopaedically Handicapped.

The type of programme suitable for orthopaedic children is dependent upon the type of children requiring

special educational attention. The provisions which have to be made are for physical, medical and health reasons, rather than for the promotion of academic accomplishments. For example, a child who is crippled by poliomyolitic is not necessarily affected in the way he learns to read and write. He may have psychological and emotional hurdles to clear but the learning process is the same in him as in children who are not cropplod. The adjustments necessary are physical and emotional rather than educational. In other words, the "special" part of school becomes an adaptation of the physical surroundings for the facilitation of learning, rather than devising of special methods of teaching, such as braille for the blind.[17]

The Mentally Retarded.

Provisions for the mentally retarded children have been made in residential institutions, public school classes and day-care centres.

Welfare Services in Denmark, Germany and Netherlands[18]

These countries are representatives of the continental social security system, based upon conpulsory disablement insurance and similar insurances for wage earners. In the Netherlands, much emphasis is laid on sheltered employment for all kinds of unplaceable persons. In Germany, more emphasis is placed on payment of compensation and benefits. A quota scheme provides a higher number of jobs reserved for some categories of handicapped persons and a few sheltered workshops exist. France is in between, providing a variety of therapeutical and educational facilities besides a number of

subsidised measures for Substitute Permanent Employment, most of which are managed by private or semi-official charitable organisations.

V

Problems and Suggestions.

Assessing the magnitude of the problem.

It is evident from the brief review given in the preceding paragraphs that the magnitude of the problem of the physically handicaped in our country is very great but the steps taken for their education and rehabilitation have been of a piecemeal nature. A planned endeavour at educating and rehabilitating the physically handicapped cannot be undertaken effectively without some indication of their number, their main characterisation and their primary needs. Some voluntary organisations/ educational institutions and State Governments have been attempting studies of certain categories of handicapped persons from time to time but there is an urgent need for a scientific national study of the problem. The Census authorities have shown their inability to undertake the enumeration of the physically handicapped persons due to inadequate staff and prior commitments. In view of this, the National Sample Survey of India would be the best organisation to undertake such a study.[19] The Department of Social Welfare may also not only sponsor studies through voluntary eorganisations or educational institutions but may also directly undertake a few field studies in the various facets of the problem.

There is no system of registering and enumerating handicapped children in our country like Great Britain.

Government may introduce certain concessions or inducements for these physically handicapped persons who register themselves with specified government institutions, like free prosthetic aids, free medical aid, concession in travelling, supplying information regarding job vacacies etc. Officers incharge of health centres may be required to report cases of physically handicapped children, they may come across in the course of their official duties. In this way, fairly accurate statistical information may be collected.

Legislation.

There is an urgent need to enact legislation for educating the physically handicapped children on the lines of the Education Act, 1944 in England. The constitutional provision regarding universal and free compulsory primary education should in due course of time be made applicable to the handicapped children as well.

Preventive Measures.

In view of the high cost of providing special educational and rehabilitation services for the handicapped children, it would be desirable to lay stress on the importance of taking preventive measures. Many handicapped conditions are due to malnutrition. It is necessary to undertake vigorous preventive programmes with a two-fold objective; first, to increase the resistance of the child to infection and second, to provide proper and timely medical care.

Integrated Approach.

Since the cost of residential schools needed to meet the educational requirements of blind children is

hi gu, the most practic l solution of t is problem seems to be in the integration of blind children with other children in ordinary schools. The education commission has also strongly favoured the integrated type of education for the handicapped children because of two reasons; reduction of costs and promotion of mutual understanding between the handicapped and the non-handicapped children. It recommended that every attempt should be made to bring as many children into the integrated programme as possible. This has been accepted at the policy level since the Fifth Plan but adequate measures for implementing the idea have yet to be taken on any appreciable scale.

Pilot Studies for the new types of handicapped.

The Education mmission also ggested development of services on a pilot basis for some additional categories of children who have peculiar educational needs, e.g. the partially-sighted, the speech handicapped, the brain-injured etc. The Committee on the Preparation of a Programme for Children (set up by the Department of Social Welfare in 1967) also recommended the establishment of pilot institutions in each State for the partially-sighted, partially-hearing, speech defectives etc. Hardly any significant attempt has been made in this direction so far.

Early detection of defects.

For early detection of conditions leading to disability and for securing for children the appropriate services, it suggested inclusion of a short-course on rehabilitation in all e courses for legree or diploma

in education. A great awareness on the part of the teacher will facilitate early detection of defects and reference to the appropriate authorities. Periodic health inspection should form part of the educational system.

Standards and Vocational Guidance.

Educational standards in the existing institutions need to be brought at par with those prevailing in ordinary schools. The institutions should administer some aptitude tests to every child over 14 years of age in order to assess his potentialities. This would enable him to make an effective choice of the vocation in which he may specialise. Periodic evalution of the programme of instruction should be encouraged. Appropriate changes may be made from time to time to keep up with the changing trends in the employment market. In view of the fact that a majority of students come from rural areas, some of the existing institutions should develop training programmes in agricultural and other rural occupations.

Administrative Set-up.

The Union and State Governments should accept full responsibility for the education and training of the handicapped children. This policy may be implemented through the District level authorities so that the benefit accrues to the handicapped persons in the remotest parts of the country.

Comprehensive approach needed.

A comprehensive programme should be planned where adequate attention is paid to the physical, economic and social rehabilitation of the handicapped. Neglecting rehabilitation threatens the benefit derived from

the educational and training programmes. Rehabilitation embodies the democratic and humanitarian ideal that each individual is important, that each person has the right to participate in all aspects of national life and that each member of the community should contribute to society to the fullest extent of which he is capable. This realisation is reflected in the Sixth Plan.

Need for a more diversified training.

Practically all the institutions provide training in traditional handicrafts. This inevitably narrows down the employment opportunities. It is, therefore, suggested that the training facilities should be diversified, keeping in view the avenues of employment. According to Bent Anderson, job opportunities created, for instance, for the severly physically handicapped, by modern techniques are numerous, specialised division of labour has created jobs for the blind (e.g. telephone), for the crippled (assembly line), for people with back disorders (light work), for people with respiratory diseases (indoor work), etc. It may also be possible that future improvement in the techniques of medical, social and vocational rehabilitation will enable some of those who are at present unplaceable to enter the normal labour market.

Placement

Pilot schemes may be prepared by the Department of Social Welfare in consultation with the Director General, Employment and Training to explore the new types of employment. It would be advisable to study the working of the existing employment eschanges for the handicapped so as to determine their effectiveness in

placing handicapped persons in the open market and how these could be further strengthened. Expansion of the present net-work of employment exchanges should receive special attention. Special Employment Officers should enable the handicapped person is getting a job and assist him in adjusting to his work situation. Special problems would arise which would need to be carefully studied and tackled in order to restore the disabled person's confidence and capacity. Efforts should be made to persuade the industrialists to absorb the handicapped persons voluntarily. Legislation, making it compulsory for an industry to employ a certain percentage of the handicapped persons, may be necessary as has been done in U.K.

Sheltered Workshops and Home-work Programme

In a country where unemployment is widespread and prejudice against the physically handicapped is very great, it is perhaps unrealistic to expect that all trained persons could be placed in the open market. According to Bent Anderson, "Measures for Substitute Permanent Employment seem to be a better alternative since they make it possible for the unpleaceable persons to contribute towards their own income".[21] "MEPE is defined as any arrangement which provides facilities for long-erm employment of people who are not able to work under normal conditions in the labour market and whose working capacity cannot be sufficiently improved through rehabilitation or other available measure, to enable them within a foreseable future to work under normal conditions for a wage which is socially acceptable."[22] Sheltered workshop is, therefore, of considerable importance.

In some countries, particularly in the United States and Netherlands, the majority of workshops provide both permanent employment and serve as a rehabilitation measure through training, counselling, etc., aiming at employment in the normal labour market. For those severely handicapped who are not able to leave their homes, home work programme may be established. Under this, tools training and raw materials may be provided for the homebound, to enable them to participate in gainful economic activities. The raw materials are to be brought to the handicapped and the finished products collected under special arrangements. Because of high transport costs and difficulties of arranging production efficiently, the economic value of home work programme is often rather low. But the social gains may be comparatively high and the arrangements may be corrected and coordinated with programmes for care of the handicapped.[23] Such detailed assistance in Indian conditions would be possible only through well organised voluntary bodies.

Hostels and recreation centres.

It is sometimes experienced that for want of accommodation near the work place, the handicapped person is not able to accept a job. Provision of suitable hostels near industrial centres becomes necessary. There is also need to provide some recreational centres for these people so as to enable them to utilize their leisure time constructively. Participation by the blind in ordinary youth groups for accouting, camping, games and other extra curricular - cultural or social - activities should be encouraged. This would be a great

step towards their integration with the normal society.

Age concessions.

Due to various medical, social and economic reasons, by the time the physically handicapped persons complete their education, they are overage for Government jobs. It is, therefore, essential to grant age concession of about 10 years or so to physically handicapped persons for entry into Government jobs.

Improvement of implementation.

Lastly, the technical and managerial efficiency of the services provided to the handicapped needs considerable improvement.

VI

Conclusion.

Thus in India we see only the beginning of a service for the handicapped, which the spirit of the Constitutions enjoins on the Government and voluntary effort. The work has to be considerably strengthened on all fronts, right from the quantification of the problem in its various facets. Provision of the requisite services to the handicapped on an adequate scale will require a vast organisation and a considerable amount of technical equipment as well as funds. It also requires the services of a large number of specially trained personnel. This can be accomplished only through a properly phased long-term programme. Of immediate importance, however, is the need to coordinate the existing services, both public and private and to promote adequate research into the problem.

15. Educating Exceptional Children - Samuel A. Kirk - 1962 - Boston - pp. 4-5.

16. Ibid - pp.370-71.

17. Ibid - p.283

18. Work or Support - Bent Anderson - Organisation for Economic Cooperation and Development Paris - 1966.

19. Minutes of the meeting held on 13.10.1970 in the Department of Social Welfare to consider a national study of the physically handicapped - pp.2-3.

20. Work or Support - Bent Anderson - Op.cit.

21. Ibid.

22. Ibid.

23. Ibid.

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1.4.0 EDUCATION AND REHABILITATION OF THE DISABLED

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ABSTRACT

The General Assembly of the United Nations has proclaimed the year 1981 as the 'International Year for the Disabled Persons' and has set forth certain objectives including promotion of all national and international efforts for education, training and rehabilitation of the disabled people for their integration with the society. Within the framework of the general objectives, India has set for itself some specific objectives, the most important objective being education, employment and rehabilitation of the handicapped.

At present India is having about 3 to 4 million handicapped children excluding the emotionally disturbed or brain injured children. This is no doubt a tremendous task. A brief flashback into the past would reveal that 'special residential school' has been an accepted pattern for most handicapped children. Unfortunately the education of the handicapped has been very slow, mainly due to public prejudices. The integration of the handicapped children into ordinary schools commonly called as 'open education' is a

comparatively recent development.

Unfortunately most of the educational facilities for the disabled children have been urban oriented leaving the development of the rural handicapped population to itself. The cost of educating a handicapped child in a residential school is very high. Therefore, ruralisation of handicapped education is inevitable. A number of suggestions are made in this paper under item No.7. Some of them may be long term while some of them are short term.

We cannot say that education has taken place until the behaviour is changed. The criteria of community's social acceptance of the disabled should be total welfare - educational recreational, vocational, social etc. The percentage of the disabled persons absorption in the main stream of life in relation to the able-bodied is the main criterian of the success of their education.

1. INTRODUCTION

The General Assembly of the United Nations has proclaimed the year 1981 as the 'International Year for Disabled Persons' in their Resolution No.31/123 dated 16th December, 1976. In doing so, the UN General Assembly set forth the following objectives :

(i) Helping disabled persons in their physical and psychological adjustment to society.

(ii) Promoting all national and international efforts to provide disabled persons with proper assistance, training, care and guidance to make

available opportunities for suitable work and to ensure their full integration in society.

(iii) Encouraging study and research projects designed to facilitate the practical participation of disabled persons in daily life, for example, by improving their access to public buildings and transportation systems.

(iv) Educating and informing the public of the rights of disabled persons to participate in and contribute to various aspects of economic, social and political life.

(v) Promoting effective measures for the prevention of disability and for the rehabilitation of disabled persons.

The theme of the year is " FULL PARTICIPATION WITH EQUALITY". In other words, integration should replace the present trends towards segregation , enrolment of handicapped children in ordinary schools should replace their relegation to special residential schools and development of sheltered employment should replace discrimination in society.

2. OBJECTIVES FOR INDIA :

India has, since ancient times, extended a humanitarian consideration to the handicapped. Yet for a variety of reasons, the process of rehabilitation of the handicapped has been very slow in our country. India was one of the signatories to the UN resolution

proclaiming 1981 as the 'International Year for Disabled Persons'. This casts on India a special responsibility to observe the year in a fitting manner. In 1981, the Govt. of India would like to lay the ground work of a pattern of services for the handicapped that will reach grass root level and encourage to develop aids and equipment particularly suited to Indian needs. It would also help to widen the base for technological research into their education, training and rehabilitation so that the benefits of these studies would be distributed to as large number of the handicapped people as possible.

Within the framework of the general objectives as declared by the UN General Assembly, the specific objectives to be achieved by India with the help of the present resources may be stated as follows :

(i) To evolve a National Policy on the handicapped, to include education, training, employment and measures to achieve full social integration.

(ii) To collect all relevant data on the handicapped people in the country.

(iii) To lay a foundation of a network of services for the handicapped at the grass root level so that a comprehensive rehabilitation service is eventually provided.

(iv) To initiate a few practical programmes that would carry immediate and significant benefits to handicapped people themselves.

(v) To give a positive rural bias to services for the handicapped since a great majority of handicapped persons live in rural areas(At present, practically all institutional programmes are located in urban areas. Most handicapped people from rural areas have to migrate to cities in order to secure to benefits of rehabilitation services which adds to the problems of urbanisation).

(vi) To develop a strong national disability prevention programme (Currently, only a national programme for the prevention of blindness is in operation. What is important is to develop and put into op ation a compre ensive and pragmatic programme for the prevention of other disabilities).

(vii) To prepare a base for research and development through National Institutes so that in the years to come programmes for the rehabilitation of the handicapped should be responsive to change in the social and economic climate.

(viii) To develop a planned network of information and publicity services for dissemination of information on new techniques and programmes for the handicapped and for employers, teachers and social workers. Compaigns to eradicate social prejudice should form an integral part of the plan.

3. BASIC AXIOMS :

We must remember that there are three axioms which are of fundamental importance for all work for the handicapped.

(i) The effect of a disability must always be judged in relation to the present and future circumstances of the person concerned. There are disabilities which may not be handicap in certain circumstances, for instance, colour-blindness is a disability and is for obvious reasons an absolute bar to employment in such occupations as those of 'navigating officer' at sea or 'locomotive driver'. Outside those limited fields the colour-blind worker is at little disadvantage in employment and many colour-blind people live right through their lives without ever discovering that they are not like others.

(ii) Disability, as a rule, is only partial. The assessment of the handicapped persons really needs to be carried out in terms of function rather than of anatomy and physiology. To do it accurately requires closer analysis of the activities of work and daily living in functional terms. There is a great field here for research and it is hoped that serious efforts will be made in this direction.

(iii) To be handicapped is not an unmitigated disadvantage. It may bring real and positive compensation. This dictum is not a mere consolatory platitude but experience in work with the handicapped shows that it is an important truth. History has plenty of examples in which handicapped people appear to have achieve great

successes inspite of their handicaps, but a closer study of such cases suggests that some part of the achievement atleast has been made possible by the handicap itself. Very often the strong will to work and succeed supersedes the disability, the well known example is 'Helen Keeler'.

4. EDUCATION FOR THE HANDICAPPED :

We in this country imported the system of educating handicapped children largely through christian missionaries who came from Europe. As a consequence, special residential school was the accepted pattern for most handicapped children. Unfortunately, the education of handicapped children has been characterised by inertia possibly reinforced by widespread public prejudices.

Looking back briefly into the past, the integration of handicapped children into ordinary schools commonly called 'open education' is a comparatively recent development. There is evidence that in the early 19th century various forms of integrated education were introduced for certain categories of the disabled. But, by the atrocities of time they were not looked upon favourably. It was only after the last war and particularly in the late 1950's that 'open education' was seriously considered as an alternative to 'residential schools'. and the like. Integrated education or open education is not in conflict with the more more established forms of education. It should be seen as complementing rather than competing with existing forms of special education. There are some children for whom

'open education' may not be suitable, perhaps they are of the wrong temperament or their degree of disability is an extremely limiting factor which cannot be overcome by the techniques. On the other hand, there are children in residential schools who could quite easily adjust with the ordinary schools. Due to the simplicity and logical nature of integration, the practical implication of this method of educating handicapped children is reasonably easy to apply in a variety of areas.

In a Rural Open Education Scheme, a specialist teacher - one who has experience according to the category of the child being dealt with is essentially required. The main function of the specialist teacher is to make learning possible. In setting up to build a scheme in a rural area, the first task is to find suitable children, living within a reasonable distance of the school. Secondly, the next task is to carefully interview the children and make a selection. Some may not be suitable on account of age, health or other difficulties. It will be necessary and important to speak to their parents, relations and friends, explaining exactly the purpose of educating the handicapped children, how it is done and why. It is important in the early stages of such work, that the first few pupils should be good ones, so that satisfactory results will encourage other children to join in the scheme.

There are a number of systems that can be used in the 'integrated system' or 'open education' scheme.

(i) THE VISTING TEACHER SYSTEM :

Under this system, a handicapped child attending the primary school in his own village has the help of a visting teacher, who is responsible for a number of children in different schools in the district. The visting teacher supplements the regular school programme by teaching skills requiring individual attention.

It is essential that the handicapped child should be introduced to the school, so that he can get familiar with the layout of the system. He meets the teacher, gets over any nervousness of attending school and settles down with the minimum of disruption to school routine. In this context, prior to the enrolment of the handicapped child in a local school, the specialist teacher would give the class teacher and the Head Master full details of the new child, and would always be at hand to help and advise on difficulties if any. Once these steps are completed the work of the specialist begins with regularity and intense purpose, remembering that it is his job to make learning possible and to supplement the work of the class teacher.

(ii) THE SPECIAL CLASS SYSTEM :

Under this system, handicapped childre n generally work with able bodied children of their own age in the normal classes but have access to a classroom where books and special equipment are available for subjects which need careful interpretation. In this special class room, a full-time qualified teacher is ready to help them with special problems and to teach

the necessary skills. This teacher is also available to advise regular class teachers, who may require assistance in planning the curriculum and work of the children in their classes.

(iii) THE CO-OPERATIVE SYSTEM :

This system is already working in a number of areas in India. But usually it is suitable where there is an established school for the blind, deaf or orthopaedically handicapped. The two schools - the special school and the ordinary school - co-operate in giving the children the best education possible, by exchanging the teachers between them.

3. URBAN vs RURAL FACILITIES :

The first school for the blind was set up at Amritsar in 1887 and the first school for the deaf was set up at Bombay in 1885. These were two categories of children who received education in the last two decades of the nineteenth century. In 1947 when India attained independence the country had only 32 schools for the blind and about 235 schools for the deaf. The number of schools for blind children has grown about 6 times and that for deaf children 4 times. Schools for mentally retarded children began to be set up in the late thirties and early forties. Special schools for orthopaedically handicapped children are by and large the product of the post-independence period.

Currently not more than 5% blind and deaf children are in school. Since a large number of handicapped children go to ordinary schools, no reliable

information is available about how many receive the opportunity of education. Only a fraction of 1% of mentally retarded children are fortunate enough to enter the portals of a school. We imported not just the pattern of the 'residential school' but also the 'curricula of schools' for handicapped children from Europe. Towards the end of the 19th century, the industrial revolution had made considerable inroads into the the life style of people in rural areas. As a result, most schools for handicapped children were established in large urban centres of population. The state of technological development was one of the factors that triggered thinking and action concerning the education of handicapped children. Technology flourished in urban areas, this wa another important reason why education of handicapped children has been almost entirely urban oriented.

6. SIZE OF THE PROBLEM :

The present available statistics are as floows :

Sl.No.	Category	Approximately
1.	Blind	3,00,000
2.	Deaf (Dumb)	2,50,000
3.	Orthopaedically handicapped	5,00,000
4.	Mentally Retarded	25,00,000
	Total	35,50,000

Thus, India may well have anywhere between 3 to 4 million handicapped childre , this does not

include such categories as emotionally disturbed, brain injured children with specific learning disabilities and the like. If we, in course of time, begin to provide services for a wider range of handicapped conditions, the number may be much larger.

Residential schools have been able to attract a small number of handicapped children. Today handicapped people quite often live and work in segregated institutions. Even when they live in the community they tend to be like 'Robinson Crusoe on a Deserted Island'. Further, the cost of maintaining and educating a handicapped child in the residential school today works out to somewhere between Rs.6000/- to Rs.8000/- per annum. Integration is, therefore, a social and economic necessity.

80% or more of our handicapped children live in rural areas. Migration to urban centres of population calls for a radical change in their life style. Apart from economic reasons, return to rural ways of living becomes virtually impossible for handicapped children in special residential schools in urban centres. The tragedy of segregation arising from social prejudice is heightened by the maladjustment stemming from urbanization. His rehabilitation must, therefore, take place in an urban centre where the competition for economic goodies is already fierce and ruthless. In the unequal fight the handicapped job seeker solicits concessions. His dignity is often thrown to the winds. Thus for social, economic and even

humanistic reasons 'Ruralisation' is a sine-qua-non.

Today, we realise that there is no dichotomy between social action and education, the one is necessary complement to the other. We cannot say that education has taken place until behaviour has changed. The criteria of health education, for instance, must be the improvement of the health in the community. Similarly, the criteria of community's social acceptance of the disabled should be the total welfare - educational, recreational, emotional, vocational, social etc. The percentage of the disabled persons absorption in the main stream of life in relation to the able bodied, their contributions to the community's progress and prosperity; the degree of independence that the disabled achieve in the community should be the criteria of social acceptance.

7. SOME SUGEESTIONS :

1. A National Council similar to NCERT may be set up exclusively for the education, training and rehabilitation of the handicapped persons. This should consist of the representatives of the Govt., Education, Industry, employers and social workers.

2. Regional Committees and State Level Committees should be set up to help the National Council in education, training and rehabilitation of the disabled persons. Their composition may be similar to the above.

3. A General Census and door to door survey should be conducted and a record may be prepared of all categories of the disabled cases with their bio-social data and psychological evaluation as a National Registration. This should be updated every 5 years.

4. International Agencies like UNO, UNESCO, UNICEF and ESCAP etc. should be involved for help and guidance for the implementation of the integrated education programme and other welfare schemes for the disabled.

5. A comprehensive act for compulsory education, training and employment of the handicapped people may be passed urgently.

6. To take immediate steps to draft an educational programme at the primary as well as secondary levels for the disabled and to give specialized traiming to teachers.

7. To establish a few centres in the country to carry out differential diagnosis of disabilities, offer advice on care at home, placement in schools etc.

8. As a first step to developing a national network of integrated education for the disabled children, concerned organisations should be advised to undertake pilot projects on integrated education.

9. To establish a system of collaboration between the National Institutes for the disabled for

developing skill, training and other technological aids for their education.

To organise radio and TV programmes and exhibitions providing relevant literature to the community to educate the people and eliminate the prejudices.

To organise seminars and conferences of local authorities (village Panchayats, zilla parishads, block developments etc.) with educational authorities (schools, teachers etc.) and voluntary organisations and social workers in order to make the society aware of the problems of the handicapped.

Preparations may be taken in hand to cover the maximum number of disabled children in rural areas to receive education, as far as possible through the normal educational system.

Research may be undertaken to identify problems in education, training and rehabilitation of the disabled children and the dynamics of integrated education should be scientifically studied.

Attractive incentive schemes may be started for all agencies responsible for constructing public buildings and transport avoiding access barriers for the handicapped.

To devise a suitable machinery to have overall supervision on the operation of the integrated education programme throughout the country.

Provision should be made to reserve at least 5% seats for all categories of disabled students in ITIs.

17. To develop scholarship schemes for young handicapped children to cover at least a part of the cost of their education.

18. In the professional courses like engineering, architecture, science, catering, medicine, etc. special emphasis should be laid on the problems of the handicapped and the possible contribution by these courses.

19. Arrangements may be made at the local level for educational pre-vocational, vocational, personal and social counselling and guidance.

20. Provisions may be made to give financial aid for transport and other educational and social services.

21. Literacy programmes for the rural population should be initiated to promote awareness of the need for education and rehabilitation of the disabled.

22. To organise recreational, cultural and religious services involving parents, associations of the disabled and other concerned organisations of the community.

23. To give short duration orientation courses to the class teachers and to organise workshops or cooperative societies engaged in agro-based industries.

24. Training Courses should be organised by the government for various levels to develop understanding and appreciation of the problems of the disabled.

25. Since healthy and congenial atmosphere at home is essential for the success of the integrated education of the disabled children, steps should be taken to educate parents and members of the family.

8. CONCLUSION :

Formal attempts of educating handicapped children in India began in the last two decades of the 19th century. In the last century we have provided educational opportunities for a rather insignificant number of handicapped children in urban areas. Services designed for rural children have not yet emerged. It is an open secret that at the State and local level one witnesses only the faint flicker of interest in the education and rehabilitation of the handicapped. The flicker is soon snuffed out by the constraints of resources which have sometimes to be diverted to priority areas like agriculture and irrigation. It is essential, therefore, that the Central Government should come forward with even greater initiative than in the past. Legislation and Legal action can be one of the most formidable tools for social change though it may be true that attitudes cannot be changed by law, we know the fate of prohibition act in several states. Probably, it may to some extent help in the case of disabled. By breaking the barriers to integration, individuals are brought together on unselfconscious basis so that all the member - able bodied and disabled - have an opportunity to know each other in roles different from

group stero types.

In the International Year for the Disabled Persons, it becomes the duty of the nation to focus attention on millions of handicapped children living in rural areas totally deprived of rehabilitation programmes and almost forgotten by the nation. Just as in the last two decades of the 19th century, began a flicker that has slowly developed into a flame of interest, so should the last two decades of the 20th century fan that flame to burst into a conflagration of interest and real aimed at helping deprived handicapped children in rural areas.

Great thinkers like Toyanbee, Sorokin, Huxley, Shakespeare and Nietsche on different occasions have expressed similar views on morality " Morality is a human tendency which serves a positive and useful function . When this tendency is lost or diminished, the future of mankind is endangered. The services to the weak, vulnerable and the disabled could be the measuring rod of the morality of the community". If the morality of the public in our country has to be raised, we must act on this sentiment, here and now.

Therefore, in conclusion I remember the following lines for the disabled :

" Life is mostly froth & bubble,
Two things stand like stone;
Kindness is another man's trouble
And courage in your own".

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1.5.0

EDUCATION OF THE DISABLED

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1.5.1 ABSTRACT

The present paper outlines the need and importance of the development of the disabled persons and their possible contribution to the economic progress, if they are given appropriate training and work opportunities. An attempt to survey the welfare measures so far undertaken by Government agencies and others has been made. The need for educational programmes for the disabled is emphasized, and the list of various kinds of agencies who should be entrusted with the responsibility of educating the disabled. The author identified problems in motivating the disabled and suggestions to overcome them. The major questions to be answered before one is set to make the curriculum for the disabled.

Slight of the world community is want of sufficient appreciation of the disabled's needs and problems, but there is no gain saying that formal and non-formal education are crucial factors regarding participation of disabled in the development process of world communities. Taking note of this phenomena this paper attempts discussing educational programmes for disabled along with four organisational categories together with non-formal, vocational/non-vocational educational programmes, constraints, problems, directions and strategies.

The paper also emphasises the need to change the sympathetic attitude of the abled towards the disabled and a particular attitudnal change among the disabled themselves. The potential skills of the disable should be matched with

the needs of the society while rehabilitating the disabled. A well co-ordinated effort should be begun and carried on as a continuous welfare project of the disabled.

1.52 Introduction:

The United Nations has designated 1981 as the International year of the Disabled which aims at focussing the attention of the people the world over to physically handicapped persons. The physically handicapped are an integral part of the society and no civilized nation/society worth the name could afford to ignore their right to work and have a decent living. The objectives during the year of designation include helping disabled persons in the physical and psychological adjustment to society, providing better assistance, training, care and guidance and promoting effective measures to prevent disability and the rehabilitation of the disabled.

In the present age of science and technology each and every citizen of the society in expected to assume a dynamic role and participate actively in all spheres of human activity. In the wake of scientific and technological advancement disabled have been provided with a vast number of opportunities whereby they can actualize their potential for work participation and make a significant contribution towards the progress of society. The contribution of an individual toward the development of society depends, to a large extent, on the opportunities he is given to develop himself. In this context, to be fair to them who constitute a small percentage of the world's population and in order to enhance their contribution to society at large, disabled need to be provided with opportunities whereby they may develop to the fullest degree of their potentialities. But inspite of many declarations by policy makers and administrators pledging to remove the hiatus between the abled and disabled, the disabled continued to remain

educationally deprived. The discrepancy between the literacy percentage of abled and disabled is as serious as the discrepancy between abled and disabled with respect to all other levels of education. In fact, the question of illiteracy among disabled is closely related to the question of educational deprivation among disabled in general.

Welfare of Physically Handicapped

Programmes are being implemented for the education, training and rehabilitation of four categories of handicapped persons namely, the blind, the deaf, the orthopaedically handicapped and the mentally-retarded. Three percent of group 'C' and 'D' jobs are reserved in central services and public sector undertakings for the physically-handicapped. From 2nd October 1977, the central government allowed holders of motorised vehicles on which the tax had been exempted by the state governments concerned, a concession of 50 per cent in the cost of petrol/diesel used by the handicapped, subject to certain stipulated ceilings.

Blind

There are 140 schools and training centres for the blind in the country. The National Centre for the Blind, Dehra Dun, provides integrated services. A model school for blind children is attached to the Centre. The Centre also has a training centre for the adult blind, a school for partially sighted children, a workshop for the manufacture of Braille appliances, a sheltered-workshop and the central Braille press. The national library for the blind, which also forms part of the Centre, circulates Braille literature in the country. The four teachers training centres at Delhi, Bombay, Calcutta and Madras train 40 to 50 teachers for the blind, annually.

Deaf

The National Centre for the Deaf at Hyderabad has a Training Centre for the Adult Deaf and a School for Partially Deaf Children, the only one of its kind in the country. The Training Centre imparts training in tailoring, sheet metal work, electrical wiremanship, carpentry, fitting, gas welding and photography.

Orthopaedically Handicapped

A National Institute for the Orthopaedically Handicapped is being set up in Calcutta. The Institute will concentrate on research and training of personnel for the rehabilitation of the orthopaedically handicapped.

Mentally Retarded

A model school for mentally deficient children is functioning in Delhi for children in the age group 6-15. The school also provides training in a few crafts.

Integrated Education

The national policy resolution on education suggests that as far as possible handicapped children should be placed in ordinary schools. A scheme has been drawn up and forwarded to various state governments. At present, 10 states and one union territory are implementing the scheme.

Other Services

Assistance is given to voluntary organisations serving the handicapped and to curing the leprosy patients. The extent of assistance set at 75 per cent has recently been raised to 90 per cent of the estimated expenditure on approved items. The Department of Social Welfare awards scholarships to the blind, deaf and orthopaedically handicapped students for general education and for technical and professional training. About 7,000 scholarships are awarded annually. The implementation of the scheme was

decentralised from 1 April 1977 in 5 states and one union territory. Since 1 April, 1978 the scheme has been further decentralised in another 10 states and in 6 union territories. National awards are also being given every year to outstanding employers of the handicapped and the most efficient of the employed handicapped.

Educational programmes for the Disabled.

While economic factors loom large in the case of every individual and individual nation, the quality of life is also dependent on other factors such as health and nutrition, civic participation, general standards of living and the creative use of leisure time.

Socio-econimic conditions in less-developed countries and the inadequacy of welfare services have made it imperatige that the educational programmes focus on the satisfaction of basic needs. Poor environmental sanitation and health standards, malnutrition, and short life expectancy are problems that be set the lives of the disabled. All these countries have non-formal programmes for the disabled in family health education, and in consumer education and home management which dissiminate information and include positive attitudes. Efforts are also to be made to promote participation in civic education programmes.

Despite all this activity and the stress on "basic needs" strategies, the impact of these educational programmes on the living standard of the disabled seems to be almost as negative as the effort of income generating projects on the citizens of a society. Programmes have not reached the poorest and most educationally disadvantaged of the disabled. A multiplicity of organisations have participated in the provision of such non-formal programmes but the absence of central planning or co-ordination has mulitated against the maximum utilization of available resources.

Some of the State Governments offer programmes for the physically disabled which includes, (a) Training cum production centres: in these centres the physically disabled are imparted training to become a turner, welder, machinist, tailoring, Radio and TV servicers and typewriting; (b) Individual oriented scheme such as wheel chairs, artificial limbs, Braille equipment and hearing aids; (c) Economic support Scheme such as Typewriters, Sewing machines, mitch animals, sheet units, siggery and assistance for digging wells; and (d) Institutions such as Special schools for the deaf, dumb and the blind; attached hostels to the above schools, home for aged and disabled, home for the blind and home for physically disabled orphans.

Constraints and Problems:

A bird's eye view of the existing educational programmes has brought out some constraints and problems relating to its (a) access (b) utilization and (c) organisation.

The constraints that are specific to vocational education programmes are a natural concomitant of barriers to the participation of the disabled reflected in the prejudices of employers, parents and other members of families stem from the image of the disabled exclusively as alien to the disabled. Disabled themselves lack adequate motivation to utilize even the limited facilities available to them. The socialization process has conditioned them to accept the under-privileged roles and to lower their career aspirations. Many of the programmes that exist at present, are outmoded. Meagre facilities, antiquated methods, absence of qualitative and quantitative norms of production and inadequate infrastructural services have rendered many educational courses of the disabled unproductive and futile.

In discussing the educational programme of the disabled the aspects to be tackled are - what kind of approach is

to be adopted to cover all the disabled persons, which agencies are to be involved, what steps are to be taken to motivate the disabled for learning, what content, materials, and methods are to be used, and finally how the educational programmes for the disabled are to be evaluated.

Approach to the problem:

Of course, disabled persons in India constitute, a small fraction of the total population and the rate of work participation among the disabled is again a very small fraction of the disabled universe. This means that a majority of the . . disabled in India are either neglected voluntarily, or involuntarily. In order to reach the disabled, the educational worker has to approach them in their place of residence.

But to reach the disabled in quickly, in terms of effort and coverage, the educational programmes will have to be more in the nature of an extensive-programmes. But to ensure that the educational programme is oriented to the achievement of educational objectives as set forth under the vocational education for the disabled, the elements of an intensive approach will have to be incorporated in the programme.

As has been proposed by all many education no doubt will have a special place of its for the disabled, but the principal objective is to increase the awareness of disabled people about themselves, and about the social reality around them, and to organise them to assist themselves and also understand and strive to solve the different problems in their day-to-day life and to involve them in meaningful and challenging tasks of social and individual development. Besides this, the main elements of the education of the disabled will, therefore, include an appropriate 'mix' suited to the needs and interests

of the individual of such themes as general education including citizenship training, health education, upgrading of vocational skills, deeper understanding of science and technology in day-to-day life and physical education and cultural activities. To achieve the aim of imparting education among the disabled in conjunction with promoting social awareness and developing an ability to solve the different problems faced by them both formal and non-formal channels of education would have to be utilized. In imparting the necessary knowledge and skills and inculcating the desirable attitudes among the disabled, a multifacet approach needs to be adopted where due importance would have to be given to all kinds of media of mass communication like newspapers, radio, and television.

Agencies:

A prerequisite of education of the disabled is that all agencies, governmental, voluntary, private and public sector industry, institutions of formal education etc. should lend strength to it. Education of the disabled is being looked upon as a means for an all round development of these individuals. In view of this, ministries/departments other than those of education could be involved to provide the functional development component. The involvement of agencies other than the Governmental is also required because, (a) Education of the disabled is so colossal in nature that no single agency can undertake its implementation on a single-handed basis; and (b) it should be relevant to the needs of the disabled, flexible regarding duration, timings, location, etc., and diversified with regard to curriculum. Governmental structures are not necessarily the most appropriate for organising diversified and flexible learning opportunities which aim at enabling the people to take over the responsibility for other own

development. In this context, the voluntary agencies shall have to play a significant role in implementing education of the disabled. The role of government would mainly be to co-ordinate the activities of various agencies which involve themselves in implementing the education, and to fill the gaps.

It can be suggested that autonomous organisations like the welfare boards having branches in the districts and villages can play a significant role in the organisation of educational programmes for the disabled. The welfare boards have a large number of organisations such as Mahila mandals which may help in the implementation of educational programmes. A number of other local religious, social and cultural organisations such as Bhajan mandals, Youth clubs, Harijan Sevak Sanghs, sports club, dance, drama, and other cultural groups may also be involved in providing education to the disabled. There is large variety of institutions which cater to one or the other aspect of the disabled should be encouraged to undertake educational programme for the physically handicapped person.

It may, however, be added that the decisions regarding the involvement of a given agency will depend on a number of factors such as local conditions, expressed needs, interests, and aspirations of the prospective learners.

Motivating the disabled for participation in the educational programmes

What is earnestly needed is a systematic analysis of the factors which motivated the disabled to learn and consequently to come to the class. By the same token it is necessary to find the factors which dissuade the disabled from wanting to learn and join in the educational programmes. The disabled whether male or female is deeply embedded in his own set of preferences and prejudices, has a wide variety of complexes including complexes about his/her

ability to learn - is subjected to a complexity of forces. He/she is unaware of many rights provided to him/her constitutionally.

Traditionally the disabled often course themselves for being born in to the world and their role in the society as a worker and public being is completely ignored. In such sporadic circumstances, how can one expect that they could be allowed to attain education. It is quite obvious that old traditions and customs, social prejudicies, apathetic attitudes of the elders and so on will still be working as deterrent forces in keeping the disabled out of the educational sphere.

It is the educational planner who has decided that uneducated disabled are to be educated and are to be made socially aware. Here it is not the disabled who go to the educator with any demand for becoming literate or socially aware or has expressed any keenness to understand the social reality around him/her.

In this context, the first step should be to find out whether or not disabled are willing to get what the policy-makers want to give them. Moreover, the planners on the one hand aim at fulfiling the needs of the individual learners, and on the other at involving them in meaningful and challenging tasks of national reconstruction.

Even after the disabled has joined the General/Vocational education class, some of the factors which initially dissuaded them from joining the class still continue to have an influence on them. In addition some other factors like the unsuitability of time and place of study, uninteresting materials and methods may cause them to be irregular and uninterested in educational schemes for the disabled.

Curriculum for the disabled:

Technically speaking, in constructing any curriculum four basic Questions to be faced by the curriculum-planners. 1. What is its purpose? 2. What subject matter is to be used? 3. What learning experiences are to be provided? and 4. How are the results to be assessed?

Regarding the formulation of curriculum for the disabled the questions to be settled are - what approach is to be adopted - formal, non-formal or a combination of the two, who should construct the curriculum, what should be the content, what materials and methods should be used and how should the results be evaluated? Out of these questions two, namely, who should construct the curriculum and what content should be included are very crucial questions. There are different opinions as to who should be responsible for formulating the curriculum. Some educationists are in favour of giving the whole responsibility to General/Vocational education workers, while others are of view that it is to be left with the technical expertise and should be undertaken by a team of inter-disciplinarians. Out of the some dissuaded factors which are mentioned in earlier sections, the only factor which attracts is curriculum and if curriculum is need and interest-based the chances of the learner coming to the class regularly would be quite high.

It has been emphasized that the education of the disabled would be flexible and need-based. But the term need-based has two connotations: the programmes may be based on the needs of the adults as perceived by the curriculum planner or on the needs as perceived by the learners themselves. It needs no explanation that the needs as perceived by the curriculum planner may not coincide with the needs felt by the learners themselves. The curriculum planner comes

from a social milieu quite dissimilar to that of the learner and is therefore not very competent to understand the real needs of the learners

The content of curriculum generally, should include occupational improvement, increasing employment potential, better home and family living, effective participation in civic and community affairs and environment of life.

The foregoing discussion makes it clear that no concrete content could be specified for any particular group. Only a few broad guidelines could be provided:

1. The curriculum should be on the one hand functionally relevant to the needs of the individual and on the other related to the needs of the society.

2. The content should be neither purely need-based nor interest-based.

3. The curriculum should be tailored to meet the immediate and specific needs of the disabled.

4. It should promote an all round development of the individual.

Finally a word about the evaluation of the educational component of the disabled. For an adequate assessment of results a continuous, well planned, comprehensive, and broad-based appraisal of all aspects of the education is called for. The evaluation should cover both quantitative and qualitative aspects with special reference to the integration and interpretation of behaviour changes.

In evaluating the impact of the education of the disabled, the disabled as well as the functionaries of all levels should be involved and both objective and subjective measures should be resorted to. Some such behavioural changes may have taken place among the disabled of which they themselves would be the best judges and there may be no opportunity for the educationist, or the researcher to

observe them. For instance, the attitude of the able bodied towards the disabled may have undergone some change; they may have adopted some new and promoting practice or they may have stopped believing in a certain omen - in all these cases, the disabled themselves would be in the best position to assess the impact of the learning experiences provided for them.

Direction

While educational programmes can never be a substitute for long term development directed towards attacking poverty and inequalities they are useful instruments in effecting structural and attitudnal change by promoting educational opportunities and eliminating discrimination. It needs to be considered that:

a. Educational programmes for the disabled are integral components of development policies and not ad hon programmes.

b. Such programmes permit the disabled to play a positive role.

c. National development policies are examined for negative impact on the participation of disabled women in different sectors of national life.

Target groups

Educational programmes are part of an interlocking process of continuing education. The successive implementation of any programmes requires the support of programmes in educational and vocational guidance as well as planning to meet the needs of the disabled in different situations. Where educational programmes are concerned, the diversity of potential target groups calls for flexibility and innovative approaches. Among such target groups are:

a. The orthopaedically handicapped who leave the school at an early period, who have no income or the least income and suffer the most hardship and who need assistance in improving their living standards.

b. The deaf, and the slightly mentally retarded persons who are often employed and exploited as casual factory workers who need access to programmes that will enable them to participate in more remunerative and stimulating economic activities.

c. The blind, who have been educated in Braille method and unemployed who need professional and technical training in traditional as well as non-traditional areas, such as precision skills in technical work.

d. Creative disabled persons who wish to develop their talents.

Strategies:

Flexibility in organisation and the adoption of alternative strategies are necessary to meet the needs of the disabled. Such programmes should include: a. Part time employment and retraining facilities for those returning to work after a lapse of some period.

b. Training in entrepreneurship for disabled in self-employment.

c. Home-based activities such as:

i. Home gardening and animal husbandary for disabled women.

ii. Local training cum production centres for training in crafts and small industries located within a reasonable distance from home geared to the production of useful articles of excellent quality.

d. Locally based rather than metropolitan centred multi purpose centres, particularly in rural areas, to ensure co-ordination of non-formal educational programmes for the disabled.

The State Governments can have their own plan of action in confirmity with the national plan of action for the International Year of the Disabled. The District Collectors and Social Welfare Officers should be directed

to give priority in rehabilitation of the handicapped and in extending medical care and treatment, grant of travel passes and provision of self employment ventures to the handicapped.

Conclusion:

Finally, if there is to be optimum participation in present and future educational programmes disabled themselves must be more strongly motivated to seek ways of improving their quality of life, to take pride in professionalism and career commitment and to participate in the exercise of civic responsibilities at the decision-making level. The enthusiasm generated by the International Year of the Disabled has to be sustained by creating consciousness and a positive image of the disabled as partners in the process of national development. The International Year of the Disabled should be the beginning for a well-coordinated educational, training and employment oriented effort by all the involved agencies in the long way to go and should be a continuous scheme of action that goes beyond 31st December, 1981.

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A STUDY OF PRE CTIVE ANTECEDI TS OF SPECIFIC READING DISABILITY (SRD)

by

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ABSTRACT

The term disability, handicap and disabled are classified at the outset since they carry implications for educational decisions. Disability is an objectively defined deviation in physique or function that, through interaction with a specific environment, results in behavioural inadequacies or restrictions for the person. The negative consequences of inadequacies comprise the handicap. Educators attempt to (1) change the deviation, (2) change the environment, or (3) both.

Disability, being the product of interaction of personal deviation with an environment, is not exclusively a personal characteristic; then why use a negative term disabled, a better term may be to refer to 'a person with a disability'.

The term learning disability encompass a variety of problems (recognised by teachers) in the area of learning which are not related to retardation or the cultural deprivation. This category is therefore most important to schools and educators.

Using Money's term, Specific Reading Disability (SRD) is an important learning disability, because 'reading' is a basic tool for all other academic learning

Therefore, early prediction of SRD and detection of potential SRD children, so that appropriate interventions may be applied during critical development periods when the child's plasticity may enable him to maximally respond to preventive or remedial efforts, is most desirable.

The second part of the paper is devoted to a synopsis of a research project : A Study of Predictive Antecedents of Specific Reading Ability (SRD) of Grade I Children. After discussing the nature and causes of SRD, briefly reviewing some related studies the research design is outlined. The design visualises multivariate analysis including factor analysis and discriminant function analysis. For identifying the potential SRD children, the use of Discriminant Function Test Scores is suggested.

INTRODUCTION

DISABLED OR WITH A DISABILITY

Many common words are sued in a technical sense also. Disabled is one such word which is most frequently used to mean a handicap. Since these terms carry implications for educational decisions they must be differentiated (Hamilton, 1950).

Stevens (1962) describes Disability as (1) a deviation in body or functioning, (2) that results in a functional inadequacy, (3) in view of environmental demands. Handicaps are the disadvantages and social censures (that is, various degrees of punishment or loss of reward) that are generated by a disability.

Hamilton, K.W. Counselling the handicapped in the rehabilitative process. New York: Ronald Press, 1950.

Stevens, G.D. Taxonomy in special education for children with body disorder: The problem and a proposal. University of Pittsburgh, 1962.

Disability relates to some actual object measurable deviation in physique or functioning. But differ or deviate from the average in a multitude of Individual differences in height, weight, skin colour, aptitudes, interests, personality traits, biochemical usually go unnoticed or unlabeled as deviations. These then, differences that make no difference. Why? Whether or not " a difference makes a difference" depends on an crucial consideration: the environment or the cultural demands. Variations in skin colour which make no differ in India, make a difference in America. Variation or dev is relative to the context. Deviations rewarded in one culture may be punished in another and may receive no effective consequence in some other.

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Disability, then, is an objectively defined deviation in physique or function that, through interaction with a specified environment, results in behavioural inadequacies or restrictions for the person. Disabilities do not exist within the person himself, in other words, a disability is not exclusively a personal characteristic. It is the product of the interaction of an individual difference with an environment. So the term disabled is inappropriate, since it overlooks the role of the environment and implies that the defect lies within the person. Not an ideal, but a better term would be to refer to persons with a disability, that is, persons whose functioning in an environment places them (persons and environment both) at a disadvantage. The disadvantage subsequently results in loss or reward. The negative consequences comprise the handicap.

An illustration will make this clear.

1. A child has some deviation in physique or functioning, for example, a hearing loss.

2. The environment, especially the academic environment, includes demands or expectations that make success less probable and punishment more probable.

3. The hearing loss, which may not be a crucial problem in other settings, becomes a disability in the standard academic environment.

4. As a result of the disability a social, emotional and academic burden, i.e. a handicap, is imposed on the child.

5. The handicap becomes extreme, thus focussing attention on the deviation (i.e. hearing loss). With the focus on deviation, this particular characteristic of the person becomes a cue or a stimulus that influence the behaviour of the teacher and others.

6. The altered behaviour of the teacher and other students, frequently providing lowered expectations, pity, restricted learning opportunities, minimised access to reward and various stresses, feeds back to the child.

7. Eventually, the child begins to refer to himself as less perfect, less valuable and less competent. The lowered self-referent behaviour of the child becomes a continuing personal cue for even lower levels of functioning.

8. Finally, the continued negiative self-referent behaviour, the increasing disabilities and subsequently increasing handicaps may produce not only an aggravation of the original deviation but additional deviations in body or functioning. The child, in all probability, will develop

a variety of emotional behaviours, social withdrawal, aggressiveness, fears, or decline in various constructive behaviours or all of these. These new problems or deviations then become the source for a whole new series of interactions with the environment that produce more disability and subsequently, greater handicap.

Since disability and subsequent handicap are the product of personal deviation with an environment, educationists attempt to (1) change the deviation, (2) change the environment, or (3) both. An appreciable change in either will alter and short-circuit the usual resultant chain of problems.

Special education has been philosophically committed to minimising negative deviations. Developing intelligence, modifying social behaviour, improving vision and hearing, developing psychomotor coordination, and raising competence in reading, writing or arithmetic are all attempts to reduce deviations.

THE DISABILITIES

The nomenclature used to classify disabilities has been greatly influenced by disciplines and professionals outside of education. Therefore, the labels used reflect a preoccupation with medical, psychiatric and sociological perceptions that are, at best, remotely related to educational decision-making. They rarely tell the teacher: WHO can be taught IN WHAT WAY. So, one can put five or six labels on the same child and still not know WHAT to teach him and HOW.

The major traditional categories of disabilities are :

1. Sensory Disorders: (1) Deaf: (b) Blind

2. Motor Disorders
3. Communication Disorders
4. Behaviour Disorders
5. Mental Retardation
6. Learning Disabilities.

Each of the above major categories has its sub-classes, such as deaf and partially hearing: slight (27-40 db), mild (41-55 db), moderate (56-70 do), severe (71-90 do) and extreme (91 do or more).

The Learning Disabilities : This last category is a relatively recent addition. Its domain has not been reliably charted. The concept of learning disabilities is mysterious and complex. It includes notions of brain damage, hyperactivity, mild form of retardation, 'socio-emotional adjustment', language difficulties, subtle forms of deafness, perceptual problems, motor clumsiness and, above all, reading disorders.

Attempts to define the term learning disabilities have created confusion rather than clarification of the concept. A part of the problem arises from the fact that we lose sight of "what the definition is for". The definitions are not truths, they merely set up conditions under which particular actions are to be taken, for example, grants for research for an area given priority, grants for support of children who have special education needs, or making reservations in employment. Still, there is some agreement on the elements of learning disabilities namely :

1. Academic retardation may exist

2. An uneven pattern of development exists
3. The individual may or may not have any central nervous system-dysfunction.
4. Learning problems are not due to environmental disadvantage
5. Learning problems are not due to mental retardation or emotional disturbance.

I can say with a certain degree of confidence that no research work has been done in this area in our country and as such, a review of studies done in India is out of the question. But this area is of great importance to educators and schools as it is concerned with the disabilities of those children who are average or above average in general mental ability and have learning problems which are not due to environmental disadvantages.

The areas of learning disabilities which need early investigation are listed below :

1. Precise descriptions of specific observational behaviour related to dysfunctions in learning.
2. Procedures for recording those behaviours.
3. Procedures for educational assessment and diagnosis.
4. Prevalence and incidence.
5. Effective remedial or compensatory methods of intervention.
6. Prevention.

The synopsis of a proposed research investigation on "reading disability" is given on the following pages.

ii) Nature and Causes of SRD: Satz and associates (1970, 1971, 1972) attempted to clarify the nature and the causes of SRD. Satz feels that SRD is not a unitary syndrome but rather reflects a lag in the maturation of the brain (left hemisphere) which delays, differentially, those skills which are in primary ascendency at different chronological ages. Therefore, visual-perceptual, visual-motor and directional-spatial skills, which usually appear quite early, are likely to be delayed in children whose maturation process is slow. On the other hand, language development is more likely to be observed in older children who are delayed maturationally. In other words, when the maturation process is delayed, corresponding delays in the consequence of the developmental skills are predicted. This view of Satz is compatible with those developmental positions which postulate that the child goes through consecutive stages of thought during development, each of which incorporates the process of the preceding stage into a more complex and hierarchically integrated form of adaptation (Bruner, 1968; Hunt, 1961)

Satz, P. and Sparrow, S. "Specific Development Dyslaxia; A Theoretical Formulation". In D.J. Bakker and P. Satz (Eds), Specific reading disability: Advances in theory and method. Rotterdam: The Netherlands: Rotterdam University Press, 1970, pp. 17-40.

Satz, P., Radrin, D. and Ross, J. "An evaluation of a theory of specific developmental dyslexia". Child Development, 1971, 42.

Satz, P. and Van Nostrand, G.K. Developmental dyslexia: An evaluation of a theory. 1972 Part II, Chapter 6 of this publication, pp. 121-148.

Bruners, J.S. "The Course of Cognitive Growth". In N.S. Endler, L.R. Bouleter and H. Osser (Eds). Contemporary Issues in Developmental Ps-ychology, New York: Hotl, Rinehart and Winston, Inc.1968. pp. 476-494.

Hunt, J. Mc. V. Intelligence and Experience. New York: Ronald Press, 1961.

Gibson (1968) found that the younger dyslexic child (in contrast to his age-matched control) is delayed on a number of perceptual-motor skills which are crucial to the early phases of reading. Further, by contrast, the older dyslexic child (as opposed to his age-matched control) does not evidence any significant delay in these earlier-developing perceptual skills, but, rather, lags behind substantially on a number of language skills which are crucial to the later phases of reading.

The above findings suggest that developmental delays in the initial primary school years (classes I and II) may forecast different and, perhaps, more severe delays in language integration in later years. Although, the child lag behind in certain early basic perceptual skills crucial to readinghe eventually overcomes these early lags but may then lag behind in basic skills which develop ontogenetically, later. In other words, this implies that the mechanism which undertakes the maturationallag affects the rate at which the developmental milestones are reached and, therefore, early delays in the maturation process (in classes I and II) may forecast the nature and severity of the later reading disability. This postulate of Satz puts the problem within a developmental frame rather than a disease model, such as brain damage.

ii) The importance of Satz's view is obvious for conducting an empirical study. Firstly, it is possible to identify early antecedents of later reading disability before formal reading instruction is begun. This can be done

Gibson, E.J. Learning to read . In N.S. Endler, L.R. Bouleter and H. Osser (Eds.) Contemporary Issues in Developmental Psychology. New York. Holt, Rinehart and Winston Inc., 1968, pp.291-303.

at the age of 5-7 years. Secondly, the early identification at the age of 5-7 years has an advantage from intervention point of view, because the child is generally free from personality problems (Gates, 1968) as also at that time CNS is more plastic, subject to rapid growth.

iii) Brief Review of Related Studies : No work in India has been done, as already stated; some studies are available from other countries.

Hirsch, Jansky and Longford, (1968) has a very ambitious project, a longitudinal investigation of three-year follow-up of kindergarten children. The number of predictors was quite large, 37 in number, the sample size was 106 consisting of both males and females belonging to different races. The parents belong to a low income group. The investigators were able to identify a small number of potential reading disabled children who later developed severe problems in reading and writing. An interesting finding was that visual-perceptual and perceptual-motor tests proved to be particularly sensitive in terms of both maturation and predictive validity. Therefore, the tests which were maturation-sensitive (i.e. age related) were uniformly more predictive by the end of the second grade.

Gates, A.I. The role of personality adjustment in reading disability. InG. Natchez, (Ed.). Children with Reading Problems. New York: Basis Books, Inc., 1968, pp. 80-86.

Hirsch, K. de. Jansky, JJ. and Longford W.S. Predicting reading failure: A preliminary study. New York, Harper - Row, 1966.

Sapir and Wilso (1967) conducted a study on 57 children. They assessed the predictive validity of kindergarten measures eight and seventeen months after initial testing. The criterion was Reading Readiness Test. Perceptual-motor tests were again found to co-relate highly with the criterion. The findings again point out the relevance of perceptual skills in Reading Readiness.

Weiner and Wepman (1971) using a three-year follow-up of 50 black disadvantaged children showed that percepual and perceptual-motor instruments were extremely sensitive predictors of school achievement at the end of the third grade.

From this brief review, it could be concluded that measures of skills which are in primary development at the early ages are more useful when early prediction indices are required. Furthermore, we know that multivariate designs, including factor analysis, can afford a reduction in the test battery besides increasing the predictive validity of the instrument. Therefore an investigation to determine the predictive antecedents of Specific Reading Disability (SRD) in grade I children using multivariate paradigm has been designed.

Sapir S.G. and Wilson B. M. "A developmental skill to assist in the prevention of learning disability". Educational and Psychological Measurement, 1967, 27, 1061-1068.

Weiner, P.S. and Wepman, J.M. The relationship of early perceptual level function to later school achievements in black disadvantaged children. Division of Research and Administration Grants, Social and Rehabilitation Service. Department of Education and Welfare, Washington, D.C. 20201, 197.

RESEARCH QUESTIONS

1. Are there predictive antecedents of later SRDS' ?
2. Can potential SRD groups be correctly identified during the early years of primary education?
3. In what variables do the potential SRD children lag six months or more behind their chronological age? Is this discrepancy also observed in SRD groups?
4. Is the nature of the primary factor (first factor) sensory-motor or perceptual?
5. What is the effect of socio-economic status on SRD?

Methodlogy

Predictor Variables

1. Handedness
2. Eyedness
3. Right-left Discriminations
4. Fine Motor Development
5. Visual-perceptual skills
   (a) Recognition Discrimination
   (b) Embedded Figures
6. Visual-motor Integration
7. Intelligence
8. Somato-sensory Development
9. Auditory, Discrimination
10. Measure of Ear Asymmetry-Dichotic Listening
11. Auditory - Visual Skills.

12. Maturity : Physical, Emotional and Social
13. Socio-economic Status (SES)
14. Age in days
15. Day of Testing: As testing will be individual and spread over about 100 days, to determine whether discrepant amounts of schooling affected the test battery results, day of testing designations (ranging from 1 through 100) will be assigned to each child.

N.B. : The instruments used to measure the different variables will be apparatus, performance and non-verbal materials which may be readily available.

CRITERION VARIABLES

The children will be classified into :

(a) Potential SRD Group

(b) Not SRD Group

Three measures of achievement will be used to obtain criterion estimate :

1. Teacher ratings to predict likelihood of Learning Difficulty.
2. Scores on a Survey Reading Test.
3. Scores on Criterion Reference Test

SAMPLE

A compact locality, having about 500-1000 children of age group 5-6 years, and with most of the children taking admission in Class I of the locality schools will be selected.

DATA COLLECTION

The children will be tested individually by trained

testers on school days in separate cubicles especially equipped with the instruments to provide measures of the variables. Five to ten children will be tested each day.

DATA ANALYSIS

Factor Analysis , including all predictor and criterion measures, will be done in order to ascertain the composition of sub-tests of covarying variables. A principal axis solution with varimax rotation may be obtained.

Discriminant Function Analysis : In order to achieve maximum differentiation between the potential SRD and Not SRD criterion groups, a discriminant function analysis will be performed. This would help in obtaining some linear combination of the variable that would maximise the 'between A group ' differences relative to 'within a group' difference.

A composite discriminant score based on his raw scores and the optimal weighings for each variable will be computed for each child in both criterion groups. If the mean discriminant composite scores of the two criterion groups groups are different they will permit the assignment of children to different criterion groups.

Regression Analysis : The prediction studies utilise the technique of Linear Regression in their solutions. Step-wise regression analysis of discriminant function composite scores by test and factor loadings will be performed.

"A Study of Adjustment of the Blind and the Deaf Students in standards V, VI and VII of Special Schools in Karnataka "

By

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ABSTRACT OF THE RESEARCH PAPER

The aims of education of the disabled are generally the same as for normal students, but there is a difference in the emphasis. Research studies indicate that development and adjustment should be given priority in the aims of education of the disabled.

The objective was to study the adjustment levels of the blind and deaf students in standards V to VII in the special schools in Karnataka and to compare the adjustments of the blind and deaf class-wise and areawise. The five areas selected are adjustment to home, school, peer, teacher and general were included. All the students of standards V to VII in all the schools in Karnataka except two were selected for the study.

The tool used was the PAAS developed by Udai pareek and Venkateswara Rao. The data was computerised for finding the Means and Standard Deviations and correlation coefficients.

The findings are:

1. Both the blind and deaf have positiwe adjustments, but the blind have significantly higher scores than the deaf.

2. Adjustment to teacher is lower as compared to adjustment to other areas.

3. There is a high correlation between pairs of all areas for both the blind and the deaf.

These findings indicate significants implications for selection and training of teachers and for facilitating

better adjustment of the deaf, in schools.

This study was conducted with a limited number of deaf and blind students in a few schools in Karnataka.

Genesis of the problem:

Interest in the welfare of the disabled is of recent development. In ancient times, the disabled persons were considered as born with a curse from God. They were therefore, either neglected as in many countries or deliberately left in valleys or on hills to die, as in Sparta. This was done to build up a nation of strong and able-bodied persons.

It was with the advent of Buddha and Christ that a sympathetic attitude towards the disabled developed. The disabled continued to be ridiculed for their physical or mental disabilities in several countries. It took many centuries for the people to begin positive effort for the education and welfare of the disabled. The first public school in the world for the schooling of the disabled was started in 1760.

During the last five decades there has been a perceptible increase is the interest, all over the world, in the welfare of the disabled, culminating in the United Nations declaring the year 1981 as the "International Year of the Disabled".

Aims of Special Education for the Disabled

The aims of special education for the disabled are basically the same as for the others. Except for a difference in the order of priorities. As Gulliford puts it, "in the education of children with special needs, the first priority is to promote the optimum development of the child's capacities, personality and adjustment." According to him, the aim of adjustment in special education emphasises the need to ensure that disabled children are being educated

so that they have adequate preparation for successful adjustment to living and working in the community after they have left school.

While adequate educational preparation gives a distinct advantage to them in getting jobs and functioning in society, experience and research show that personality and social adjustment are relatively more important. This has been aptly and emphatically stated by Nimbkar who says:

"What are the primary needs of a handicapped man? The food? The clothing? The shelter? Give him all these and luxuries too. But deny him the right to live, by isolation. And you have killed his soul."

Because of the priority of adjustment as an aim of education of the disabled, its nature extent and specificity of adjustment related to various operational areas in life deserve special attention in the studies and researches related to the education of the disabled.

Review of related studies:

Generally, problems related to the education of the disabled children have not attracted the attention of researches in education, though here and there you come across some studies of a general nature concerning the nature of disabilities and the problems faced by the disabled in life. Even the few studies one comes across, rarely deal with adjustment of children in school life. This highlights the paramount need for study in this area of adjustment.

A study by Kirk found a significantly greater number of problem tendencies among the deaf than among the normal hearing children. Similarly, Springer and Roslow's study confirmed that the deaf subjects received much higher scores in neurotic tendencies than did the hearing subjects.

Klich and others studied the "Social interaction and emotional adjustment among the blind." They tested the hypothesis that the level of a blind persons level of adjustment to his handicap is positively related to his

involment with a group of other blind persons. Group members did not have a high level of adjustment with the non-blind.

Is there a significiant difference between the partially disabled and fully disabled on the basis of which they can be treated separately in education? Bowyer and Gullies studied the "Social and emotional adjustment of the deaf and the partially deaf children". 60 severely and 80 partially deaf children were studied for emotional adjustment using the Lowenfield Mosaic and Word Techniques and the R Zust Village Test. For social behaviour they used teacher's ratings. No significant differences were found between the severely and the partially deaf.

Miller studied the manifest anxiety in visually impaired adolescents, including both the partially sighted and the blind. No significant differences in levels of anxiety were found between the partially sighted and the blind. These findings point to the need for combining the partially and fully disabled in respect of education for adjustment, but in other areas, researches need to be conducted to come to valid decisions. Even in the area of adjustment, the problem may differ from country to country and from community to community. The same findings may or may not hold good. Studies conducted by Lyon and Ronald in respect of the deaf and a study by Kim Yoon in respect of the blind and studies by Kissin Gerald in respect of the handicapped and by R. Hemamalini of Madras in respect to blind and the deaf - all tend to suggest the need for further research in the area of adjustment or personality development.

Formulation of the Problem

Adjustment is a life-long process and specially important in the formative years coinciding with the years of schooling. The child who first develops patterns or practices of adjustment to home life has to learn new patterns or modes of behaviour related to school life. Here he has to

develop adjustment to his peers, to his teachers and to the school as a whole. There may be situations outside the home and the school where the child will be required to meet and deal with people. This area may be termed as general for the purpose of convenience.

It may be that a child well-adjusted to home, may find it difficult to adjust to peers or teachers in school. Likewise, it may be possible that a child who has adjustment problems at home may carry his problems to school or may find a happy escape in school. A study of the problem of adjustment has to be done with reference to specific areas as well as to his whole life to be of practical guidance and use to educators and parents.

Secondly, children in standards I to IV are too young to respond meaningfully and reliably to a verbal tool. The pre-adolescent and adolescent stages are the most appropriate and effective stages to provide significant findings. A sufficiently large number of children for category-wise comparasions could not be availed of in standards VIII to X.

Keeping all the above considerations in view, the researcher formulated the following problem for the study:

" A study of the adjustment of the blind and the deaf students in standards V, VI and VII of special schools in Karnataka".

Objectives:

1. To findout and compre the extent of adjustment of the blind and deaf children in standards V to VII.
2. To find out the extent of their adjustment in the five areas, namely home, school, peers, teacher and in other general aspects.
3. To find out the inter-relationship of adjustment in the five selected areas.

4. To find out the difference if any between adjustments of children in different standards.

5. To infer possible implications of adjustment of the blind and deaf in school.

Operational definition:-

It is necessary to define adjustment as accepted in this study.

Adjustment has been defined by English and English (1958) as a condition of harmonious relation to the environmen wherein one is able to obtain satisfaction for most of one's needs and to meet fairly well the demands, physical and social put upon him.

In the present study 5 areas were chosen and a sample situations familiar to the pre-adolescent, in each area were used to measure the level of adjustment.

In this study adjustment is defined "as the individual orientation towards his parents, peers, school, teacher and himself, in terms of the satisfaction he derives from his interactional relationship with these.

Research Design

Variables Adjustment to home, school, peers, teacher and general are areas related to adjustment.

Hypothesis

1. The blind and the deaf do not differ in their level of adjustment in the five areas selected.

2. There is no inter-relationship between adjustment levels in the five areas in respect of the blind or the deaf taken seperately or together.

3. Standard-wise adjustment levels do not vary significantly in the five areas both in respect of the blind and the deaf.

Sampling -

Special schools for the physically handicapped having standards V to VII existed only in Mysore, Bang lore, Hubli and Gulburga. The school at Mysore has both the sections - one for the blind and one for the deaf. There are two blind schools and one school for the deaf having standards V to VII so far as Bangalore is concerned. Hubli has only a blind school of the category, but in Gulbarga there are two schools - one for the blind and one for the deaf.

It was decided to select atleast one school from each of the four places. It was found that the number of children in any single school was not adequate exrept in Bangalore. Ultimately all the schools in Mysore, Hubli and Gulbarga were selected and only one school at Bangalore was included as it had a large enrolment.

There are four revenue division coinciding with the educational divisions s: all of which were represented in the sample. Again, in the formation of the new Karnataka State Ex-Bombay Karnataka, Ex-Hyderabad Karnataka, Ex-Mysore area, Ex-Madras Karnataka and Coorg state were merged. The last two do not have any special school. But the other three are represented in the sample. All the children studying in standards V, VI, VII in the selected schools have been included.

Table: I: The Schools and then class-wise enrolment.

Name of School	CLASS			
	Std V	Std VI	Std VII	Total
1. Mysore School for the Blind	8	6	9	23
2. Hubli School for the Blind	4	5	4	13
3. Gulbarga School for the Blind	4	6	5	15
			Total	51
1. Mysore School for the Deaf	7	6	8	21
2. School for the Deaf Bangalore	18	9	7	34
3. Gulbarga School for the Deaf	6	2	2	10
				65
			Grand Total	116

Tools used for the study

The various instruments for measuring adjustment that have been developed in India are of the check-list type, all items being given equal weightage. Most of these instruments are modelled on Bells Adjustment Inventory.

The Pre-adolescent Adjustment Scale (PAAS) consists of 40 items measuring the adjustment of the child towards home, school, peers, teacher and general aspects. Thurstones method of equal appearing intervals was followed in the construction of the PAAS.

The score of an individual in any area of adjustment is the sum total of the scale values of the items checked by him falling under that area. The score may be positive or negative, a positive score indicating good adjustment and a negative score indicating mal-adjustment.

Validity

The scale has been validated with the ratings of the teachers from 5 schools.

Reliability

Test-retest method with a gap of 3 months had been followed. Product moment correlations were calculated.

Administration of the tool

The researcher personally administered the tool to all children class-wise in the selected schools. The heads of the institutions and the concerned teachers were of great help in the establishment of rapport between the researcher and the students.

Statistical Techniques

Mean, standard deviation and correlation co-efficients by Product Moment Formula are used.

Analysis and Interpretation

The item-wise responses of the students for each area were given scale values as per PAAS. The scores were added for each areas were added to give the over-all adjustment

score of the student. The individual scores were tabulated in groups, area-wise and class-wise separately, and together for the blind and the deaf. The means and standard Deviations were computed for the above to interpret the extent and direction of adjustment and to make comparisons as against the mid-points in the theoretical ranges for each area as per PAAS.

Correlation coefficients were computed for pairs of areas to find out the inter-relationships among them for (a) the blind, (b) the deaf and (c) blind and deaf together.

The data thus analysed and interpreted is presented as follows:

The means and standard deviation for the blind and the deaf in respect of the five areas of adjustment namely, home, school, peers, teacher and general, and overall adjustment has been assed and indicated here.

Home Adjustment

The theoretical range is -10 to + 10 as per PAAS

Table 2: Home Adjustment of blind and Deaf Students

		Blind	Deaf
V	M	7.06	5.38
	SD	2.74	2.92
VI	M	7.53	4.88
	SD	2.62	3.04
VII	M	8.33	3.00
	SD	2.23	2.74

From the above table it can be seen that the means of the blind and the deaf in std V is higher than the theoretical mid-point (+5). This indicates that both have a high level of adjustment. In the case of the blind, none of the groups have a negative score which implies that all of them are fairly well adjusted. The variation is not very high implying a fair distribution of positive scores; among the blind group the variability is less. In standards VI and VII, the blind have still higher means; it may be noted that the means appear to be increasing with increase in standard.

On the other hand, in the case of the deaf the mean tends to decreased with increase in standard which shows that the child finds it more and more difficult to adjust as he grows, though the variability in both the blind and the deaf is not very high.

Adjustment to School

Theoretical range as per PAAS:-10 to +6

Table 3: School Adjustment of Blind and Deaf Students

		Blind	Deaf
V	M	5.13	2.74
	SD	2.09	1.90
VI	M	4.08	0.35
	SD	1.89	2.68
VII	M	3.78	2.00
	SD	1.41	2.02

The blind in all classes have a mean above +3 which is the theoretical mid-point, suggesting a high level of adjustment.

In the case of the deaf, the means for the three class groups is below +3; this shows that no class has a high level of adjustment. In standard VI, the mean is 0.35 indicating a very low level of adjustment, this is due to several maladjusted students in the class.

Secondly, it may be seen that the level of adjustment of the blind decreases almost uniformly as the students proceed to the higher class. In the case of the deaf the mean of the group in standard VII is less than that in standard V.

Variability is not high in the case of the blind, but in the case of the deaf, the variability is high both among standard VI and VII students being pronounced in standard VI.

Peer Adjustment

Theoretical range is -10 to +6

Table 4: Adjustment to Peers of Blind and Deaf Students

		Blind	Deaf
V	M	3.87	3.90
	SD	1.45	2.60
VI	M	4.88	3.58
	SD	2.00	2.86
VII	M	4.55	2.29
	SD	2.60	2.97

Means of all classes for both the blind and the deaf are above the theoretical mid-point (+3) except for the deaf in standard VII where it is slightly lower. Whereas all are well adjusted, deaf students of standard VII show average adjustment.

Variability is not very high except among the deaf in standard VII.

Teacher Adjustment

Theoretical range -10 to +6

Table 5: Adjustment to Teacher of Blind and Deaf Students

		Blind	Deaf
V	M	0.81	0.93
	SD	1.29	2.09
VI	M	1.64	0.82
	SD.	1.66	2.18
VII	M	1.66	0.94
	SD	0.70	2.99

Among all groups, the means are far below the theoretical mid-point (+3) suggesting a very low level of adjustment. However, no group has a negative mean.

This shows that the class as a whole is not maladjusted, though there are a few maladjusted individuals.

Variability is also considerably high in almost all cases except in respect of the blind in standard VII.

General Adjustment

Theoretical range is -6 to +6

Table 6: General Adjustment of Blind and Deaf Students

		Blind	Deaf
Std V	M	6.00	2.29
	SD	2.38	2.17
Std VI	M	5.27	1.17
	SD	1.55	1.92
Std VII	M	5.33	1.88
	SD	1.29	3.16

The above table indicates that all the groups are adjusted; the blind show a higher level of adjustment since their means are much above the theoretical mid-point (+3). The deaf however are all below the theoretical mid-point indicating that there is average adjustment.

Variability is low in the case of the blind in relation to their mean whereas variability is high in the case of the deaf, in relation to their mean.

Overall Adjustment

Moreover all aspects of adjustment are considered together. Theoretical range is -46 to +34

Table 7: Overall Adjustment of the Blind and Deaf students

		Blind	Deaf
V	M	20.87	12.71
	SD	3.16	9.62
VI	M	23.352	10.94
	SD	4.58	2.18
VII	M	22.44	10.76
	SD	4.70	8.77

From the addition of scores in all the areas, we get the over-all score for adjustment. The mean scores of standards V, VI and VII for the blind indicate clearly that they are much above the theoretical mid-point (+17). It can be inferred that the blind are on the whole highly adjusted.

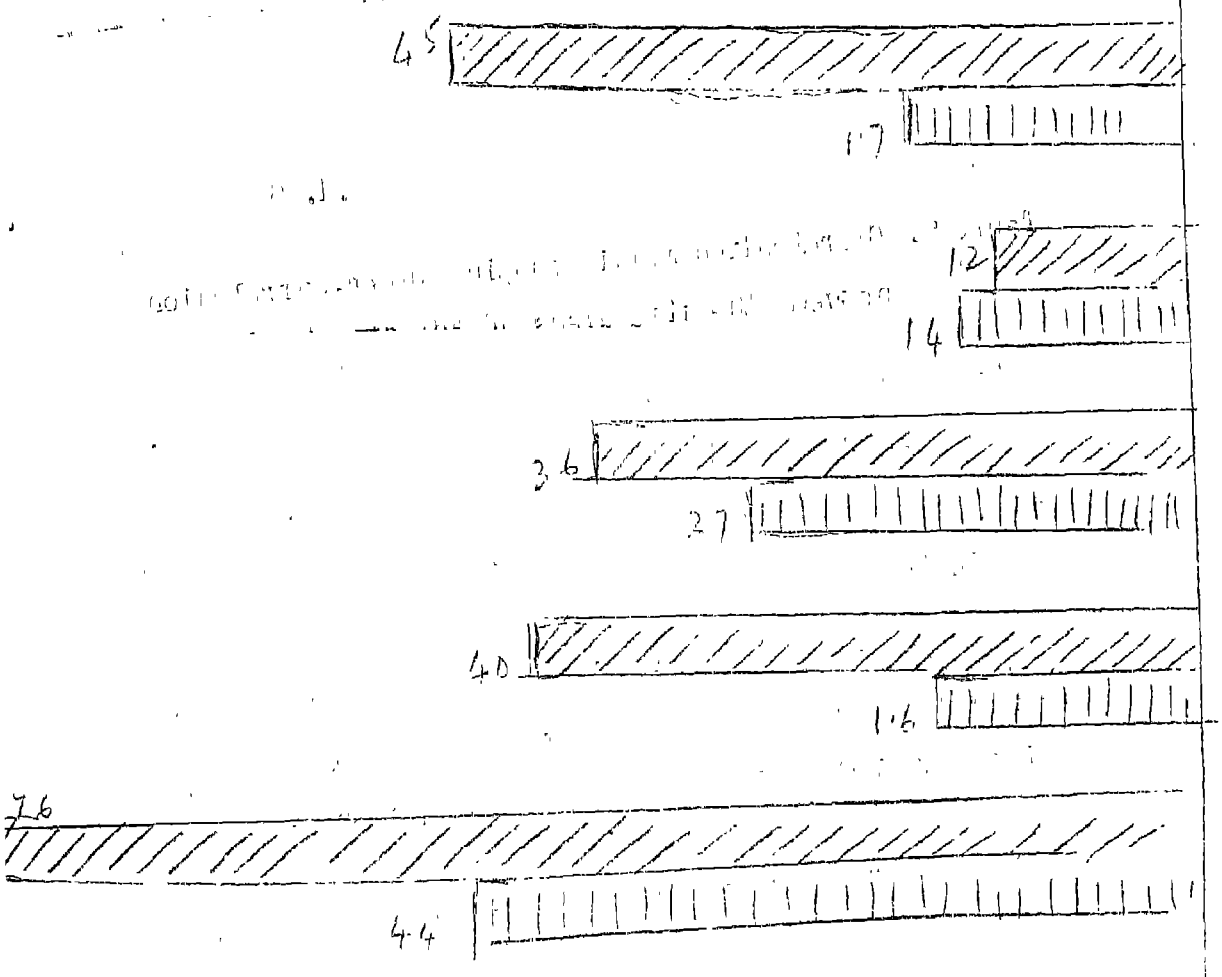
Since the deaf, on the contrary show consistently lower means in each of the three standards though positive; it is concluded that they too are adjusted but at a lower level.

Variability is not very high except in the case of the deaf in standards V and VII.

Graph Showing Mean Scores of the Blind and the Deaf in the five areas of Adjustment

Blind : n = 51

Deaf : n = 65



Interpretation

Blind 1) Adjustment levels of the Blind are higher than those of the Deaf except in Adjustment to 'teacher'.

Deaf 2) Both have highest Scores in Adjustment to 'home' and the lowest in Adjustment to the 'teacher'.

	Home	School	Peer	Teacher	General
Home		0.91	0.91	0.61	0.94
School			0.99	0.91	0.99
Peer				0.92	0.99
Teacher					0.87
General					

The matrix indicates very high correlations of 0.87 and above in all cases except between 'home' and 'teacher' where it is 0.61 which is also fairly high. All correlations being positive and high we may infer that the distribution patterns are similar to a very great extent. Adjustment of individuals does not very considerably from area to area.

Hence the null hypothesis has been rejected and the alternate hypothesis namely there is a high inter-relationship between adjustment levels in the five areas has been accepted.

Table 9: Corrleation matrix showing inter-correlation between the five areas of adjustment of the Deaf (n = 65)

	Home	School	Peer	Teacher	General
Home		0.89	0.95	0.88	0.90
School			0.98	0.99	0.99
Peer				0.97	0.98
Teacher					0.99
General					

All correlations are very high (0.88 and above) which means that there is little variation in the levels of adjustments of individuals from one area to another.

Hence the null hypothesis has been rejected and the alternate hypothesis namely there is a high inter-relationship between adjustment levels in the five areas has been accepted.

Table 10: Correlation matrix showing inter-correlation between the five areas of adjustment in the Blind and Deaf (n = 116)

	Home	School	Peer	Teacher	General
Home		0.90	0.93	0.77	0.91
School			0.99	0.97	0.99
Peer				0.95	0.99
Teacher					0.95
General					

All correlations are higher than 0.90 except in the inter-relationship between adjustment to 'home' and 'teacher' where it is 0.77 which is also considerably high. This indicates that, in general, students do not vary much in their adjustment in different areas. This was also revealed by the correlational analyses of the blind and deaf students taken separately.

Hence the null hypothesis has been rejected and the alternate hypothesis namely there is a high inter-relationship between adjustment levels in the five areas has been accepted.

Summary and Findings

The study is representative of the revenue/ educational divisions in Karnataka covering only the blind and the deaf students of stds. V to VII in Special Schools in Karnataka.

The objectives were:

1) to find out the extent of adjustment of the blind and deaf students in relation to the five familiar areas namely home, school, peer, teacher and general.

2) to find out whether students in different standards vary in their adjustment levels and,

3) to find out whether the blind and deaf vary in their adjustment.

4) to find out the extent of inter-relationships among adjustments in the five areas, considered pair-wise.

The data was collected personally by the researcher using the standardised tool namely Pre-adolescent Adjustment Scale of Udai Pareek and Venkateswar Rao which has high validity and reliability.

From the analysis and interpretation of the data the following broad conclusions emerge:

1) The levels of adjustment of the blind in all areas is generally higher than the levels of adjustment of the deaf; but both the blind and deaf have positive adjustments and no group is maladjusted.

2) There is a very high inter-relationship between adjustment levels of pairs in all the five areas for the blind and the deaf taken separately or together.

3) Standard-wise, the adjustment level does not increase or decrease significantly except in one or two cases.

Implications for Education

1) Since the adjustment of both the blind and deaf towards the 'teacher' is low as compared to their adjustment in other areas, it is necessary that properly trained teachers with a sympathetic attitude towards the disabled have to be provided in schools.

2) As the blind and deaf students show positive adjustment in each of the five areas, the general impression that the disabled are maladjusted needs to be changed for this, concerted effort needs to be taken by the government and other organisations.

3) Since the adjustment levels of the deaf is comparatively very low as compared to that of the blind, greater attention for better adjustment, needs to be paid in special schools for the deaf.

4) Since the study was conducted with the limitations of a small sample of 51 blind and 65 deaf students, the findings of the study need to be tested and validated by further research in the area of adjustment.

The present study may be considered as merely an exploratory one.

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2.2.0 - Teaching Geography to the Blind

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Abstract

Geography, a study of the earths surface can best be studied through maps, diagrams and other visual aids. The skill of map reading is essential to understand geography aid to develop a special relations. Since blind students cannot take advantage, Tactile maps can be used. Individual guidance is required and cannot be provided by the teacher, programmed learning enables the blind pupils to read maps and develop related concepts. Programmed learning has been used to acquaint such students with the political map of Maharashtra. The results are slow but encouraging by writing suitable programmes in geography, the blind can be made aware of the world they live in.

Teaching Geography to the Blind

Geography as a Subject

Geography to a major subject in the school curriculum between Std. III and Std.X. It is a compulsory subject and the reasons for its study are obvious; it will teach a content of connected facts, interesting, significant and culturally valuable. It will suggest the world view, upon the educational value of which we may all agree. It will lend accuracy and reality to ideas of other people and other parts of the world, so that the world view shall be enlivened by a realistic appreciation of other lands (Briault and Shave, 1962). The study of geography is a profitable one for children not so much because it prepares them for this or that but because it can provide them with stimulating material having immediate significance and because it offers opportunities for keen intellectual exercise in the pursuit of the significant relationships between the various parts of the findings (Gopsill, 1958). Childrens' intellectual aptitude is developed by geography as it involves observation, memory, imagination, judgement and reasoning (Tulippe, 1963).

The chief aim in teaching geography is not information but ability to think geographically. In other words, geography is not a subject in which we merely try to remember where is what but in which a systematic effort is made to draw together all the facts about a place. Such an integrating function of the subject enables one to examine relationships between various features e.g. climate and agriculture, industry and transport etc. At a higher level, one may study such relationships at different places and thus understand distribution of such phenomena in the world.

The study of geography, therefore, embraces all

the phenomena of the earth's surface and the vast scope of its subject matter presents one of the most difficult of all the problems of school instruction (Welpton, 1923). The subject is best studied by direct experience through field-work. However, there is a limit to the amount of field work essentially from two aspects: time and finance. Geography is hence studied indirectly by having it presented to our imagination and our forming of mental pictures from such material. To serve this purpose, the unique tool of geography viz. the map (and now serial photographs and landsat imagery) are used. Travel accounts, pictures, photographs are other sources of indirect information.

How the Child Learns Geography

The child begins to learn geographical relationships in the immediate vicinity by experience while those in distant environment are studied through maps. The study of maps is influenced largely by the concepts the child forms. These concepts of space change and get matured with advancing age. The earliest conceptualisations are topological i.e. those like proximity and separation. These are followed by notions of continuity of lines and surfaces. The child's ability to co-ordinate relationships emerges as he carries out actions in or on his environment. Organisation of space in two or three dimensional frame is the outcome of a long series of experiences involving both perception and action. It involves a kind of coming together of notions of relations that are internal to each object or pattern, Euclidian relations established between numbers of objects and pattern together with certain notions of perspective (Piaget and Inhelder, 1956).

But to understand geographical relationships, conceptualisation of space and proper perspective alone does not help.

Attitudes of the children towards people of their own country and foreigners also builds up their images of geography (Piaget and Wail, 1951). The child's ability to attain concepts and even percept depends on his general stage of development and upon his particular experiences with visual material (Veness, 1972). A child may be able to identify objects from two dimensional representations but may not be able to interpret a series and in fact may not see the scene as a whole and this limitation influences the understanding of geography. The formation of geographical concepts is closely associated with the development of an appropriate vocabulary. Geographical terms are presented to children through their own experience through visual stimuli (Milburn, 1972).

The Difficulty of Teaching Geography to The Blind

The difficulty in teaching geography to the blind is now obvious. The visual stimuli cannot be made use of in the development of concepts. Mapreading, therefore, is almost absent and diagrams which aid comprehension of concepts cannot be used. Experiences become restricted and concepts which have denotative meanings i.e. literal meanings that make it possible for the members of a discipline to communicate with each other are rather difficult to form.

In such a situation, Braille maps can, of course, be of some help. But while a teacher in a normal class finds no difficulty in explaining a map to the students at the same time, interpreting Braille maps simultaneously for all students could pose a few problems. The basic concepts like scale, orientation may not have been formed. Individual attention during the slow process of learning

with the maps is not always possible. It has been possible to present information on co-ordinates which can identify points on the map cutaneously i.e. through the skin (Von Haller Gilmer, 1970) but then the problem, particularly in our country is of resources. In such a situation does it mean that a large community of students should be deprived of knowing a subject of immense utility only because complete aid in the formation of concepts in the subject cannot be provided?

An Experiment to Solve the Difficulty

An experiment carried out by the author appears to make the answer to the question above negative. The experiment consisted of acquainting a blind student with the political map of Maharashtra through programmed learning.

The student was completely unaware of the location of Maharashtra, its neighbours etc. Verbal description on this aspect of geography failed to make an impression on him as he continued to ask questions, all apparently reflecting his confusion. With the help of some material, I constructed a Braille map of Maharashtra showing all that I wanted him to know and drew a programme given below. (In brackets are the instructions he had to follow.) The student's curiosity to learn was also an important asset.

	Frames	Responses
1.	(Feel the map with your fingers) The map shows Maharashtra. The map presents ..... units of Maharashtra	Administrative
2.	(Feel the map with your fingers again) Maharashtra is a state. The next lower unit of administration is the	district
3.	(Read the names of the districts. Note them down.) The total number of districts in Maharashtra is	twenty six

-	Frames	Responses
4.	(Move your fingers to find out the top of the map.) In a map, the top indicates north. (Read the name.) Above Maharashtra is ...., therefore, lies north of Maharashtra.	 Gujarat Gujarat
5.	Move your fingers in the northern parts of the map to read the name you found in the previous step. Now shift your fingers slightly to the right. Read the name.) .... is the other state north of Maharashtra.	Madhya Pradesh
6.	(Move your fingers to the bottom of the map. Read the name.) The south is shown towards the bottom of the map..... is below Maharashtra. ..... lies south of Maharashtra ..	 Goa Goa
7.	(Place again your fingers at what you had read in the previous step. Move them towards the right.) Another state bordering Maharashtra in the south is	 Karnataka
8.	In a map the right shows the east. (Move your fingers to the rightmost corner. Read the name.) Maharashtra is bordered by ..... in the east.	 Madhya Pradesh
9.	In a map to the left is the west. (Move your fingers to the left is the west. (Move your fingers to the left. Read the name.) To the west of Maharashtra lies	 the Arabian Sea
10*	(Feel the second figure and recognise the four directions.) The direction midway between the north and the east is southeast. Similarly between the south and the east is southeast. The direction between the south and the west is ..... The direction between the north and the west is .... (Repeat the names of all directions.)	 Southwest northwest
11.	(Refer again to the map. Locate the south-east. Read the name.) Southeast of Maharashtra is	 Andhra Pradesh

*This step became necessary as the student was unaware of these directions.

Frames	Responses
12. (Read the name Bombay with your righthand finger. Place a finger of the left hand at that point. Move the fingers of the right hand to different corners of the map.) Did you feel you had to move your fingers much to the right to reach the extreme eastern corner of Maharashtra?	Yes
Did you find that your righthand fingers moved away from the left hand finger? ...	Yes
13. When your right hand fingers moved to the right, they moved towards the	east
14. Since they moved away from the left hand finger, it means the left hand finger was in the left margins of the map.	
In other words, it showed a place in the ..... area of the state.	Western
That is ..... lies in the western parts of the state.	Bombay

Observations:

The observations of the experiment were:

(A) The student who was totally unfamilar with directions on the map now knew something of the same.

(B) The student had also offered history. Some of his doubts such as the reasons why Europeans had established their colonies first on the coast became clear. He recognised that accessibility formed a major factor in the early colonisation of the Europeans. Though unable to grasp completely, he realised that there exists a spatial point of view and certain phenomena are better explained in terms of space.

(C) The student formed certain concepts about the size and shape of Maharashtra. He could not, however, mark the difference in the sizes of the state and of the districsts. This situation arose for (i) the map was not drawn to scale and (ii) the state boundary and district boundaries had the same feel. Two different types of lines with varying tactile surfaces on a well drawn map will solve the problem.

(D) The student was under the impression that a particular state borders another state only on one side. Madhya Pradesh, he felt, lay only in the north. He found it difficult to understand how Madhya Pradesh could also lie to the east of Maharashtra.

(E) The student appeared to be in confusion as to how two states bordered Maharashtra on one side. He thought that on one side there would be only one state. That both Goa and Karnataka formed southern boundaries or Gujarat and Madhya Pradesh both bordered Maharashtra in the north, was at the first instance rather confusing to him.

(F) The student found it difficult to grasp ideas like a certain city being in an extreme corner of a state because he could not view or in this case, touch, the state as a whole. His contact with the map was only through a few fingers and thus he could not appreciate ideas such as the eccentric location of the capital in Maharashtra.

The last three observations reveal what has been referred to as the problem of part-observation and incomplete ideas which assume great importance in the blind child's acquisition of knowledge (Lowenfeld, 1950). This is obviously because the sense of touch is local.

The results of the experiment were very encouraging though they were achieved very slowly. The student found a new point of view to explain some phenomena. He had absorbed some new ideas such as the distribution of places in space. It was heartening to note that on a map of India the student himself could explain why the Aryans or the Muslims first came to the Punjab and then penetrated towards Bengal while in case of the British it was just the reverse.

The experiment was only a small step. The map that had been prepared was of a crude nature. No experiments were or could be carried to measure, quantitatively, the results and evaluate and compare concepts before and after introducing the map. The programme developed did not rigidly follow the rules of programmed learning as mentioned by Klaus (Klaus, 1961). An improved programme will benefit the student as it will remove the difficulties faced by him. A joint effort of geographers who can furnish the content, of educationists who can suggest suitable methods of teaching and improve upon such techniques like programmed learning, of psychologists who can provide means to get insight of a problem and of all those who are engaged in the teaching of the blind will eliminate the difficulties in learning Geography. Programmed learning books on Geography supplemented with maps and other diagrams in the Braille would be an extremely useful aid for the blind in learning Geography, providing them with a spatial point of view. They will satisfy the educational and personal needs of the blind particularly at a time when academic opportunities and expectations are being expanded (Gulliford, 1971). True is that such a point of view will be limited but then it will help them to understand better the world the blind live in.

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(Acknowledgement: Shri Vasant Hegde but for whose enthusiasm and help I would not have been able to carry out the experiment.)

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2.3.0 THE TEACHING OF SCIENCE TO THE BLIND

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ABSTRACT

The purpose of teaching of Science to the blind is to give a clear understanding of the environment and to enable them to speak an educated language. Attempts have been made to make our Science teaching more interesting with newly available materials and special devices. Our major difficulties are probably;

1) the lack of efficient communication of information other than by word of mouth teaching;

2) need for finding outways and means of creating and stimulating interest in the subject; and

3) the need for arranging experiments by pupils in ways which are fully comprehensible to the blind.

Text books are usually only a partial solution as far as the first problem is concerned. Interested pupils suffer from the fact that there is a shortage of scientific literature (of a general nature) available to the blind. The use of embossed diagrams give the clear understanding about the topic.

The problem of finding the position of the level of a liquid in a measuring cylinder which occurs quite often in Physics and Chemistry justifies the introduction of an apparatus known as "audible measuring cylinders". It is a combination of ordinary embossed measuring cylinders and battery and buzzer. The experiments consisting of weighing and accurate temperature reading are conducted with the help of a modified thermometer and spring balance.

We have found that blind pupil can be taught sufficient Physics, Chemistry and Life Sciences to obtain a certificate of High School or Higher Secondary Board Examinations of N.C.E.R.T. courses with some modification in practical examinations.

Introduction:

The emphasis in this country has traditionally been on Arts and vocational subjects, the limitation of these aims is no longer acceptable. Physiotherapy had become a valuable career for blind men and women and for this a knowledge of basic science is required. No one, except teachers of the blind feel comfortable about the argument that it might be wise for the blind to know enough about Science to enable them to speak the language of educated people. When I was appointed as Science Teacher in 1976 all boys took General Science upto High School level. The boys in fact did a good deal of practical work under the guidance of teachers; results were encouraging in that all the boys passed. The question now is whether it is possible for the blind pupils to study an advanced level of Physics, Chemistry and Life Sciences for which practical examinations are rightly required. By teaching theory and modifying some apparatus and substituting the sight factor by three things i.e. sense of touch, smell and hearing. With the help of tactile sense, the teaching of Life Sciences has become possible. With the help of Olfactory sense the teaching of both the theoritical and practical aspects of Chemistry is possible and auditory sense helps us in modifying apparatus for experiments in Physics. We have become convinced that a study of Science is completely viable for blind students at least at secondary school level and that they have a full right to study the subject. It is harder for them, generally, to

gain experience of phenomenon and their curiosity may not always be so easily whetted. But those two connected facts make it more incumbant upon teachers to stir their curiosity and to help them to gain that experience which will be a factor in giving them the self confidence which they so badly need. The environment is hostile to the blind; the more they can master it by understanding it, the happier they are likely to be. Blind pupils must use the other four senses, which are likely to give more fragmented impressions. In learning Science, the experience may be different from that of a sighted person. For example, experience, of light must be presented through sound; provided the student is able to understand the principles and he realises that this oral experience is different from the visual experience of a sighted person, the change of medium does not matter. It is understanding that matters in learning Science, not aesthetic appreciation.

Any means may be employed to help understanding; the real is better than the symbolical, e.g. in Biology the living body, growing plants and clay models have their place, though blind students must be taught to interpret them, to magnify dimensions and to realise difference of texture. Sometimes a model can show principles better than the real object because irrelevance can be discarded. It is essential for blind students to be trained in interpretation of embossed drawing and for teachers to understand what fingers can interpret.

It might be thought that much special apparatus is required to teach Science to the blind. We believed so at first, but we see clearly now that it is for several reasons better that the blind student should use normal apparatus with braille scales fixed, if needed for blind students

want to work with sighted pupils, the former should be able to use the latter's apparatus commercial apparatus is vastly cheaper and much more quickly available than specially produced items. What is really needed is a resourceful and imaginative teacher with the patience to move at a slower pace which is essential even for clever blind pupils with aptitude; The greater the opportunity for discovery the better. The teacher can at least see that pupil does as much for himself as possible and that he has the fun of taking for himself the final step to the solution.

THE TEACHING OF SCIENCE AT AHMADI SCHOOL FOR THE BLIND, ALIGARH

Science was first introduced as a General Science course upto the secondary level, for which no practical examination was required. But it was not enough for providing good background knowledge of the environment. A more profound scientific knowledge was required. Higher Science was introduced in the School as an examination subject upto High School, for which a practical examination was required. We were compelled to concentrate our teaching efforts on all three i.e. Physics, Chemistry and Life Sciences as independent subjects. Physics was chosen as the subject on which we would place the main emphasis chiefly because it appeared that it would be possible to adapt a larger proportion of the usual practical work so as to enable participation by the blind in this branch of science rather than the others. We now teach Physics, Chemistry and Life Sciences to the Secondary and Higher Secondary levels. We regretted that we paid less emphasis to the other branches of science but we do teach as much Biology and Chemistry

as the syllabi permit. Some of the difficulties in teaching Biology are realised- we cannot use the microscope or micro-projector and the many excellent biological diagrams, nor can we carry out dissections. However, we use clay models of animal organs and organ systems, parts of plants, skeletons stuffed animals and the pupils' own body to help illustrate teaching. Much of the ordinary school, chemistry practicals rely upon visual observations and use of measuring devices requiring vision. While we can overcome some of the consequent problems, it is still not possible to indicate a large number of chemical reactions. By modifying, to some extent, the usual introductory syllabus, however, it does seem possible to introduce some interest in and understanding of fundamental chemistry using small identification, exo-thermic and endothermic reactions, audible effects and other means of indications comprehensible to the blind and thus introduce at least partial pupil participation. We have found that a blind pupil can be taught sufficient Chemistry to obtain a certificate of a High School or Higher Secondary Board Examination with some modification in practical examinations. The factor is obvious danger in Chemistry practical of use of heating in most experiments and the handling of fairly dangerous chemicals and largely because of this, there are few uses of a Chemistry qualifications in pupil's future career.

In our attempt to try to make our science teaching more interesting we have been greatly helped, in recent years, by newly available materials and newly developed special devices; naturally, problems arise when one tries to teach any subject to persons whose vision is poor. Science teaching renders a few of the general difficulties more acute and adds a few of its own - specially in the field of practical work and demonstrations. Our major

difficulties are probably:

1. The lack of efficient communication of information other than by word of mouth teaching.
2. The paucity of ways and means to create and stimulate interest in the subject.
3. The inability to arrange pupil experiments in ways which are fully comprehensible to the blind.

The objectives in the course of instructions in experimental science for blind students may be briefly summarised as follows:

1. By means of specially designed apparatus to widen the field of meaningful perceptual contact with the external world.
2. To provide participation in the general heritage of human thought concerning the nature of physical and biological phenomenon and in particular the major concepts of Science which have become such potent instruments in the structure of modern thought.
3. To enhance manipulative skills in the operation of scientific instruments and disciplined thought in the use of methods of scientific investigation with an eye to developing potentialities for gainful occupations.
4. To enable blind students to keep abreast of the lines in matters of scientific interest and to provide some understanding of technical appliances in common use.
5. To these objectives one must add that of preparing the students to pass certain public examinations at present needed to open the door to certain professions and to the Universities.

APPARATUS

Our problem is to provide the blind students with apparatus wherewith he may be able to do experimental work associated with the course of instructions in Science.

Requirements for the design of such apparatus area :-

1. Provision of means to enable the blind students to observe the natural phenomenon which the apparatus intend to demonstrate.

2. It should be designed in such a way that the blind student can learn to operate the apparatus himself.

3. Since we are concerned herewith teaching apparatus, we aim at a design in which both form and function can be comprehended by the student.

The first requirement is mainly that of translating the visual signals of the conventional apparatus into signals perceptually acceptable to the blind. This entails, for the most part, furnishing the apparatus with devices which give audible and tactile information concerning those relevant observations which related to the experimental exercise.

Occasionally, particularly in the Chemistry course, one can make use of the olfactory sense and of gestatory sense for communicating the desired information and, in the rare cases of those who are both blind and deaf, one can use signals provided by a mechanical vibrator.

At this stage I wish to give some consideration to the operation of translation of signals in order to assess the potentialities and limitations in the communication of information. Let us consider a definite example, we have an audible photo-electric cell which emits sharp sound when

the photo cell is exposed to light and such that when the intensity of light is increased the frequency of the sound waves increases in proportions. It has proved very useful in light in experiments on physics.

Among the general methods which are available for achieving these goals we may list the following :-

- the use of embosed diagrams and three dimensional models.
- audification of apparatus
- instrument scales
- the use of probe for explaining parts inaccessible to fingers
- the use of photo-electric cell together with buzzers, bells and needless.
- aids for drawing graphs.

Embossed diagrams : We have learnt by experience that such students, with the help of suitable diagrams accompanied by the teachers explanation, will have a clear understanding about a new piece of apparatus. We aim, therefore, by means of this line diagram and our verbal explanation of it, at providing the student with a mental scheme concerning the nature of the parts of the new apparatus and more particularly their relative arrangement in space. For purposes of class teaching one requires a technique of making palpable diagrams which should satisfy the following requirements :

1. It should be possible for the teacher to make the diagrams rapidly in class. That is we seek a method which can serve a similar function as does the black board and chalk in normal teaching work.

2. We must, therefore, be able to make a number of copies simultaneously as to provide one to every student.

3. The embossed diagram be reasonably permanent so as to be retained by the student for future reference.

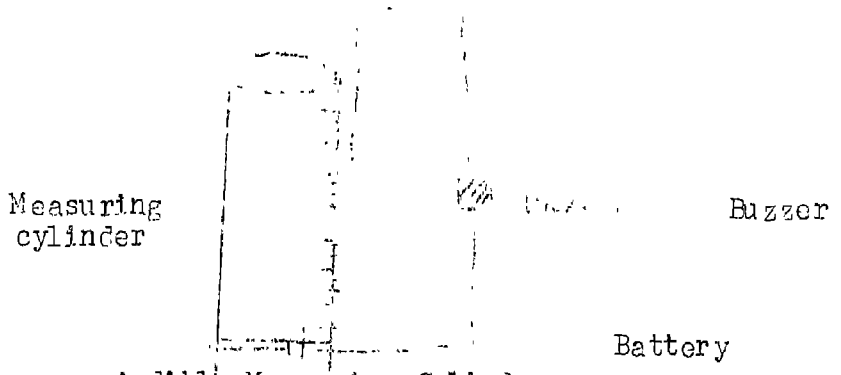
4. They should be inexpensive.

There are special cases in which it is very difficult to convey to the blind student the relevant information by means of a line drawing on a plane surface. This is particularly so where the matter to be explained involves the understanding of three dimensional relationships. This point arose when I was asked to make a diagram of seasons of the year in relation to the inclination of the axis of rotation of the earth to the ecliptic. An embossed diagram copied from the conventional diagram of the seasons given in atlases failed to convey the desired explanation to blind students. With the three dimensional model, the matter in question could be successfully explained.

Audification of the Apparatus : It is the process of modifying an instrument so that the information which is conventionally given by seeing something is, instead, given by hearing it. In other words, it is the process of translating conventional visual signals into auditory signals. In operating the instrument the blind student is asking a question and the instrument answers by making a noise or not making a noise or making a different noise. Although it is not essential that he should understand the mechanism by which the noise is produced it is preferable that he should do so in connection with a course of instructions in Science.

Keeping in view the above concept, we have designed an audible measuring cylinder. The problem of knowing the exact volume of the liquid can be solved by this apparatus; It is a very simple apparatus; It consists of an ordinary plastic measuring cylinder with an embossed scale on the side wall. Taking a wooden stick, cut it in such a way that it looks like a forceps. Insert this wooden forceps in the measuring cylinder in such a way that one end of the forceps should be outside on the embossed scale and the other one inside the cylinder parallal to the outside pointer. Take a battery and buzzer, connect one end of the battery at the bottom of the measuring cylinder by inserting a nail, so that it touch the liquid. The other end of the battery will go through the buzzer to the pointer of the wooden forceps which is inside the measuring cylinder, so that it can touch the layer of the liquid. Once the battery is on and we slowly lower down the wooden forceps, with the two pointer outside and inside the wall of the cylinder. The outside pointer runs along the embossed scale. By slowly lowering down the wooden forceps, a time will come when the inner pointer touches the layer of the liquid and the circuit will be complete. The moment the circuit is complete the buzzer or bell will go off. Hearing the sound, the blind student can stop the pointer and read the scale on the basis of pointer which is at the embossed scale.

In most applications considered here the sound signal is required to indicate a point of contact.



Audible Measuring Cylinder

Thermometry : We use a commercial instrument known as Rototherm with an extended pointed and magnified centigrade scale. This instrument is in the shape of circular dial with a pointer which is very sensitive and moves with a slight change in temperature. It is very easy to read or understand because it resembles a braille watch. With this the daily room temperature can be easily noted.

Weighing : The class work in practical experimental science both, in Physics and Chemistry, may involve at times a number of weighing operations for each experiment. The practical requirement of a weighing device is that :

(a) it should be able to weigh objects in the range of 1-500 gms with an accuracy of about 1 part in 1000; (b) the weighing operation must be rapid.

It is possible to modify the conventional laboratory beam balance for use by blind students. It requires atleast 10 minutes to weigh an object accurately. Some experiments may involve many weighing operations. In our classes which are of 40 minutes duration each day, include both theory and practical work, the use of the conventional beam balance with a set of weights would be too time consuming. With the help of spring balance a sufficiently precise weighing can be done by the blind student in about one minute. Two models are in use - one with relatively heavy spring with a range upto 500 gms and sensitivity 0.5 gm, and the other with a very light spring with a range 1-5 gm with a sensitivity of 5 mg.

The aim of Science is to increase the understanding of natural phenomenon. It may be concluded by stating a very general principle - namely, that there is always a way to do it - or at least shall almost always. And having found one way there is nearly always round the corner a better and simpler way. It is my earnest hope that readers of this paper may be stimulated to find these better and simpler ways.

A.C K N O W L E D G E M E N T

Thanks to Mr. S. Ishtiaq Haider, Principal, Ahmadi School for the Blind, Aligarh Muslim University, Aligarh for providing necessary facilities and without whose guidance this task would have been bogged down, and to my colleagues for cooperation.

2.4.0 EDUCATIONAL REHABILITATION FOR THE VISUALLY HANDICAPPED:

BY

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A B S T R A C T

Education means preparing a child for "Complete living" by helping the manifestation of "perfection" already within "man" and the "harmonious development" of all the aspects.

This idea applies also to visually handicapped children. The educators of visually impaired children should explore every possible way to make them enjoy a normal social life as far as possible and to impart the knowledge and culture to them which would fit them for all phases of life.

The visually handicapped children are found to be educationally retarded in comparison to their seeing counterparts - due to various reasons, to eliminate this condition the educators should chalk out the educational programmes in such a way that the client's concerned may overcome the limitations in the best possible manner.

Learning-readiness depends largely upon the education and training he receives from his parents during his pre-school days. It is, therefore, necessary to have "proper parental education" for proper career-planning of the

visually handicapped child".

There should be a proper liaison between the teacher taught and the parents - as the need of the individual client's are different.

The curriculum should also be tailor-made on it should be in accordance with the need of the client; special emphasis should be given for specialised subjects. The teaching-aids should be modern, up-todate informative. So that, the students get pleasure and interest in learning.

The teacher must be resourceful, enthusiastic and knowledgeable as a great degree of achievement of the client depends on him.

Counselling and guidance services, medical and health check-ups, P.T. and mobility training, recreational and social skill activities should be developed through the full participation and equality of the society.

Special incentives, equipment-banks educational facilities etc. should be developed to keep up the standard of education.

Socialisation, integration and educational rehabilitation etc. are only possible through the maximum involvement of the client, community, government, social service clubs etc.

Let us attempt on the eve of this International Year of the Disabled Persons (IYDP) - 1981 - for total upliftment and rehabilitation in the area of education of the visually handicapped persons.

Before starting this article I would like to define What is 'Education' and what is Rehabilitation?

'EDUCO' is a Greek Word, it means 'to nourish' and 'Education' means 'To nourish the Soul'; 'Rehabilitation' means 'Restoration'. So "Educational Rehabilitation' means to nourish the soul by restoring the remaining potentialities". There is a nice defination by Mary Switzer -

"Rehabilitation is a Bridge, spanning the Gap Between uselessness and usefulness, between hopelessness and hopefulness, between despair and happiness".

Education aims at preparing a child for 'Complete Living' by helping the manifestation of 'Perfection' already within 'Man' and the 'Harmonious Development' of all the aspects vital, physical, psychological, emotional, spiritual and cultural. A child should be well adjusted to himself and to his environment, independent and self-supporting, dependable and socialised as a result of his education.

This idea applies also to visually handicapped children. The educator of visually impaired children should explore every possible ways to make them enjoy a normal social life as far as practicable and to impart that knowledge and culture to them which would fit them for all phases of life.

The visually handicapped children are found to be educationally retarded in comparison to their seeing counterparts indent points by atleast two or three years. It is due to:

a) Low sensory input.

b) Low level of information.

c) Restricted and crippled communication.

d) Restricted opportunity for orientation and mobility.

e) Several psychological and social complications resulting from the loss of vision and so on.

Obviously, all these tend to make a visually handicapped child's standard somewhat behind the normal. In most cases, this can be recovered through proper education and training.

Low or restricted sensory input as a result of the loss of or impairment in vision, affecting an individual's behaviour and pattern of response to the world around him.

Low informational level as vision is one of the most important channels of information which here is absent or limited in the client.

Poor imitation, which is one of the most important and significant bases of learning and as such, this fact results in -

The delayed process of learning, lack of the geographical sense of direction, distance and space.

Crippled-communication since vision appears to be the only extensive way of establishing indirect communication with the world around us. I say, 'Indirect way of communication' with a view to distinquish it from touch which is the direct way of communication.

Lack of sufficient idea of the circumstantial world, resulting in:

Lack in the developing of normal vocabulary giving rise to

Verbalism as an offshoot.

Lack of proper mobility, restricting the field of exploration, crippling the scope of learning, development of several mental complexes, like inferiority complex, exhibitionism, sedentrainess and so on, hindering the easy way of learning to the greatest extent.

Resulting form the above facts, social retardations occurs.

The inherent and the true tune of education is to be able to stand one's own feet in all respects and especially economically. For the sighted children there are ample chances to strengthen their informational level as their education is visually-oriented, regarding job opportunities sighted children are fortunate enough.

So the educational pattern of the blind should make in such a way that they can compensate their backwardness as far as possible by suing the remaining senses to a maximum extent. Originally the pattern of education for the blind are divided into three categories:

1. Segregated - Type
   (Residential - School).

2. Integrated - Type
   (Open Education).

3. Experimental - Type.

The world as whole is moving towards integration and in some countries, the visually handicapped children are compelled to attend regular schools if they are found otherwise normal. Not to speak of the other countries we are experiencing a tremendous note of change here in India also. 'Integration' as such, is now our national policy.

The introduction of Braille Press on Regional basis tends to solve the problem relating the availability of text-books. Teachers' Training Programme has been installed in different regions to produce qualified teachers with a view to raising the standard of teaching of the visually handicapped, the basic-braille appliances are now manufactured in our country to meet the want of equipment. Training Centre for the Instructors' of the blind have been started for integrating the blind in the society.

'Integration', itself, is the most important influence in bringing about understanding and experience of blind people.

'Integrated-Plan' for the Education of the Blind.

1. Resource-teacher and Resource Room.
2. Mobile (itinerant) & Home Teaching Plan
3. Rehabilitation Teaching Plan
4. Specialised teacher

In the 'Resource-room' plan, 4 to 6 blind children from one group are brought together each day into one regular school. Braille-equipments, embossed-maps etc. are the main teaching aids.

In 'Mobile-teaching' plan the blind children will attend their regular schools, where they will be placed directly into the regular classes. A specialised-teacher for the blind will travel between many schools and he will bring materials and aids into the class. Time to time he will hold conferences and inter-disciplinary talks about the progress and the problems of the blind students, with the other general teachers, parents and authorities of the school.

Itinerant teach r is necessary for the Open Education Programme and may be allowed to serve as go-betweens, connecting the school and the pupils at home under the integrated system. The itinerant-teacher, therefore, should have a close contact with the class-teacher and must be well versed in the school subjects.

The Home-teachers are also useful in the field of education and rehabilitation of the Blind. Especially non-school going children and the adult-blind and above all, multiple-handicapped. As such, installation of such a programme is essential.

There are some resource-teachers that is those who are expert in a certain subject or subjects. For operating some special equipments to increase the informational level, special training is needed.

A large part in progressive education for younger children is played by creative, constructive and manupulative activities depending mainly on vision. These must be extensively adapted if they are to be applicable for the visually handicapped especially for blind children. Even for older children education today depends less on oral instruction than formerly, and more on visual exposition through the use of the black-board and other visual aids.

I must also refer to the activities of the National Association for the Blind, whose contribution in the field of both education and rehabilitation is undoubtedly immense's introduction of Nursery Education

for the blind and the effective services rendered by it. Talking Books Studio are two of its many unique projects. Recently, the Association has taken up a Research Programme to conduct researches and investigations into the teaching and other needs and techniques in connection with the education of the blind and the work here is reported to progress steadily. Several institutions also venture to fulfil the aim in the education of the blind and the one for the partially sighted at Dehra Dun run by the Government of India, is unique in our country.

Essential Factors for Educational Rehabilitation:

1. Academic development with learning readiness.
2. Development of communication channel and teaching-aids (low vision aid, audio-visual, audio-tactile etc.)
3. Physical education and mobility.
4. Counselling and Guidance Services to the client and their parents.
5. Class-room confrontation and proper curriculum.
6. Effective follow-up services.

Parental Education:

There should be some systemic programme for parental education. They should be made aware of the special needs of their child and should be taught to consider him first as a 'child' and then his 'handicap'. They should be properly instructed to take the phenomenon of handicap as an accident and not as a curse, so that their attitude may boldly cope with the handicap of their child. They should also have some idea of how to impart

formal and basic training to their blind child who can not imitate through seeing. Thus, the habit of using the toilet properly and that of eating, alongwith correct posture and gesture should be taught to their client patiently by allowing them to feel in certain cases.

This type of parental education should be organised with the help of the social workers. This is a must, if we desire to have better result from school education. Sometimes group-family counselling and Individual Counselling plays a vital role for rehabilitating the blind. The proper qualified and resourceful Counsellor should take initiative in this matter.

Curriculum:

We should remember that school is the focal point of information to the visually handicapped children and so the authority should try as far as possible to impart the information to the students as much as possible. The curriculum of a school should include scientific, technical and cultural activities - which would satisfy all kinds of curiosity. Education also implies all-round development, physically, mentally, emotionally and spiritually. Hence the curriculum should provide opportunity for this sort of balanced and harmonised development in the clients. But there are few schools for the blind which are ornamented with such curriculum.

The heads or the policy formulating bodies should be aware of the needs of the pupil, otherwise betterment is not possible. It is required, therefore, that the heads and atleast two members of the managing committee or the policy formulating body should train personnel in respect of the special needs of the children without sight or

with imparied vision. 'Sheer Philanthropic zeal' is not enough in this field, or it is better to have one good school than a mushroom growth of worthless schools.

Communication Channel:

1. Teaching of Braille.
2. Type-writing, T.V., Cassettee Tape-recorder, Radio, talking book, dictaphone-type-writing etc.
3. Teaching aids and text-books.
4. Teaching of Science, Arithmetic, Geography, etc.
5. Participation in Social functions and festivals etc. for developing the social skills.

Teaching of Braille:

The teaching of Braille should be more scientifically based than it appears at present. It should not be counted as part and parcel of the language class. The client should be prepared to learn Braille reading first and then writing, through the development of the senses of touch, direction, distance, space etc. All the Indian languages originate from Sanskrit, it is the source of all languages. The Government of India has introduced a new Braille-system, which is known as 'Bharati-Braille'. At first the pupil should use and learn Bharati-Braille, then it will not be difficult for them to learn English Braille.

'Open-Education' or
Integrated-teaching Plan:

1. Unit-technique of teaching.
2. Co-relational method.
3. Concept-formation through nature-study.
4. Project-method.
5. Heuristic-method.

The use of the teaching aids alongwith the Concept-formation-room wherein the different models of the objective-world are preserved should be compulsory. The models should be three-dimentional and as near to the object they represent as possible. The teacher should try to make text book features illustrative and interesting to the Children without sight.

The quality of a Resource-Teacher:-

1. Academic.
2. Professional
3. Personal.

The teacher of the children should posses all the qualities of a good teacher. It should be noted that a teacher of the blind differs from that of the seeking in degree, but not in kind. The authority should take great care in selecting them. They must fulfil the requisite academic qualifications as those of seeing. As the education of the blind is a special one, greater degree of achievement may be demanded from them.

They must be trained in teaching the children and preferably also, in teaching the seeking, with atleast, three years continuous teaching experience in the school for the seeing. Before appointment the authority should test his teaching ability by putting him into actual class-room confrontation for atleast seven consecutive days.

The authority should not try to exploit the teacher on the basis of dedication or humanism. Special allowances and incentives should be given for drawing good

and resourceful teachers to the blind-welfare field.

The effectiveness of Integrated Education would seem to depend on the factors of amount of vision, age, intelligence, and personality. Integrated Education would be universally more effective than segregated education, it might quite well successed with partially sighted children possessing fairly good vision.

Avoiding all controversy as to whether the Integrated Education or segregated system of education is suitable for the blind, it may be asserted that a system combining the two would better suit the purpose. In this case, the clients in question would be allowed to receive special education under a special stimulation and this would be confined to the elementary grade. They would join the regular school under open education programme to study alongwith their seeing counterparts, in the secondary stages. It is suggested that in the elementary grades integration may hamper the cause of the children who require special environment. Besides, they are to be adjusted to their handicap before they go to attend open education programme.

A decade has gone by since this initial experiment and today integrated education is gaining rapid ground. In Bombay city alone we can report that well over two hundred boys and girls are now studying in schools and colleges, and the movement has also spread to other parts of India. The wide gap which separated the blind child from receiving educational opportunities similar to those of seeing children is now rapidly

narrowing and there is every livelihood that in the years to come integrated education will become an accepted and established channel open to every efficient and intelligent boy and girl who is blind.

Although we cannot claim that the method has been established along ideal lines, we feel that substantial headway has been made for the laying of stronger foundations in the future. Here, briefly, are the milestones which have been reached towards encouraging Integrated Education in India.

C o n c l u s i o n:

In order to effect improvement and implement it is thus necessary that research and investigation programme in teaching technique should be installed with immediate effect to get rid to the traditional methods of teaching the visually handicapped. In this connection on the eve of I.Y.D.I. Programme, it may be brought under a nationalised-way. The betterment and proper implementation of the programme depends on:

1. National Council for Educational Research and Training, for the physically handicapped as well as for the blind.

2. Equipment Bank (for teaching-aids and appliances)

3. National Institute, Model School for Integrated Education (regional basis), for education and training Pre-vocational and vocational guidance and Counselling services, and above all 'Follow-up' services.

In a word, the educational-rehabilitation of the blind should aim to make a client vitally, physically, economically, emotionally, mentally, spiritually and culturally developed, so that he gains a balanced-personality to be socialised and self-supporting, inspite of visual impairment.

KAUSHIK/A.D.

2.5.0 1981 : A YEAR OF VISION AND REVISION

By

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ABSTRACT

Refocussing and re-orienting ourselves is necessary to make a success of education for the blind in this decade. While the usual subjects need not be neglected, the focus for a blind child should be on subjects which will help him to adapt to this own particular society, and to adapt in such a way that he will be an asset rather than a liability..... whether in rural or urban India. Independence techniques, communication skills, responsibility training, leisure time activities are all to be stressed, as also sensory training and the gaining of the fullest gamut of experience as is possible. Home-making is also an art which is not the sole privilege of the sighted. A programme mainly concerning rural blind should contain items of instruction, from local 'instructors' which are relevant and useful in a village. Literacy (or more) should only be a PART of their education.....and not take up valuable time.

Is life divided into sections? No, I say.
Then why have subjects at school?
Teach living at school,
And living means understanding
And understanding is all.

The 17 year old who wrote the above lines was not really saying that subjects are useless....but that they

serve no purpose when they are introduced without reference to life itself. This seems to be very similar to the problem we face with regard to the education of the blind. Our education system for the blind is so far behind the times that it is by and large unrealistic and merely skims the surface of the problem. New needs are constantly emerging. They have either been ignored, or taken up in a very lukewarm manner.

What poor education we have to offer the blind mainly caters to some of the needs of urban blind. What then of our majority? They are rural folk, often misguidedly put into city residential schools for the blind. What do we make of them? Misfits. They do not fully fit into the pattern of the urban and sophisticated, nor can they ever really fit back into their rural background. Like another 17 year old said 'I consider it essential that the school should change with the body of pupils it contains and with the society in which they must be adapted to live'. How true and how little thought we give to it when considering syllabi, curriculum and all the various 'gimmicks' of a school 'system'! Do we insist that urban children learn farming? Then why do we insist that rural children should be converted into urban masterpieces? Instead of teaching them the dignity of labour, the value of self-employment, the advantages of rural and family projects, we teach them only enough to ruin their chances.....leave them floudering in a sea of unemployment, or unsuitable employment. Instead of teaching a blind child to learn the value of walking alone....we teach him to be dependent and a burden to even the

most patient and willing parents and friends. Instead of teaching him that leisure time is precious and useful, we teach him to sit with his head in his hands, brooding amd meditating over his sad lot. What price education?

Literacy is essential. It is one of several items which lends to the dignity of a person, which helps in daily life and helps a person avoid pitfalls. Another teenager has summed up this aspect by saying, 'After all, a diploma or degree is not the perfect vaccine against stupidity' ; And yet, surprisingly, this is how we still look upon this aspect. Does that piece of paper guarantee that the person will get a job, that he will be satisfied and happy, that it will help his family? What does it guarantee to the majority of India's blind? He may be looked up to in his village as he is 'educated'....but does this guarantee that he is useful? In an urban setting it usually paves the way to very stiff and unpleasant competition and, the higher one goes up the ladder of degree-holding, the worse it gets. Very few blind persons have got to the very top of the academic ladder.....and even there, it has brought disillusionment. Some become very attractive and very impressive figure-heads. But, again I ask, what of our majority?

With careful placement and understanding of the problem, most urban children can be sent to normal school.....i.e. the 'normal' blind child, and not the multiple-handicapped. All that the system requires are resource groups in each area of town....teachers who will see that the child has and knows how to use special equipment, that he has understood his lessons during the

day, and that he learns to utilise his 'spare' time successfully and satisfyingly. The resource teachers will also note the child's aptitudes, inclinations and can later direct him to a suitable vocational guidance centre. Independance must be stressed both at school and at home, and the child must be encouraged in as many of the 'sighted' activities as is possible..... e.g. sweeping, dusting, washing, caring for himself (and perhaps for a younger sister).

In common with their rural brothers, the urban blind can and must cover the following areas:

1. Orientation and Mobility, and Indpendence techniques.
2. Communication.
3. Sensory Training.
4. Maximum experience.
5. Responsibility training.
6. Leisure-time skills.

1. Orientation and mobility: For all blind children, this must not be considered an 'extra' subject. It is not a mere technique to be taught when the child is old enough to hold a cane. Rather, it involves the child from as early as possible; It teacher a child to move freely and confidently, to relate to space and its surroundings; it involves complicated items such as compass directions, and the whole gamut of daily-living skills, of style and fashion, of movement that is not merely independent, but graceful and acceptable. And it opens one major door into society at large.

2. Communication: Communication is as much a part of our lives as the air we breathe, and as vital. Any breakdown in any of the senses also indicates a partial breakdown

in communication. This, in turn, spells segregation, separation of a section of the population, and this is precisely what we are fighting against.

The eyes have, not for nothing, been called 'the windows of the soul'. From the time a child is born, it learns to communicate. It begins to express hunger, frustration, joy, discomfort.....but much of this communication is on account of visual stimuli. A blind baby, however, needs to depend on his ear and nose perhaps to know if his mother is near. If there is silence and the mother is close by, it is as if the mother is not there at all. A blind baby may 'talk' to and be entertained by radio or record-player sounds for a while, but he learns soon enough that this is no substitute for a human being.

A blind child has to be accepted by a 'sighted' world. He must not just learn to communicate with other blind persons, but with sighted people, and, as far as possible, by sighted standards. He must learn to speak not with the voice of antagonism or hostility, but pleasantly and confidently. Debates, discussion, drama....all af which play a large part for sighted children....can now be seen as decidedly more important to a visually handicapped student.

3. Sensory Training: All good educational systems....e.g. Froebel and Montessori....lay emphasis on learning via the senses; it is not surprising that specially adapted Montessori equipment is being made in India today ...for the use of blind students. The touch, hearing, smell and taste are specially thought of.

Touch: To a blind child, a very important aspect of his life is what he can understand about the world through what

he can feel. He also needs touch in order to learn Braille, Maths, to do science experiments or to 'look' at Geography embossed maps. He learns to use not only his hands, but his body-touch sensations....the ground, the walls, proximity to other persons or things. Still later, using the White cane, which is actually an extension of the index finger, he will learn to 'feel' through this cane, via the finger in order to learn about his surroundings. He also learns to sort and tidy his clothes, to lace his shoes...and even thread a needle.

Hearing: By no means does a blind child have hearing that is 'compensatory' rather, it is through training and necessity that this sense must be sharpened. A blind child must not merely learn to 'listen' to surrounding sounds, lectures, lessons etc. He must use his hearing to locate himself, to guide him and to give himself confidence.

Smell and taste: These are both important to a blind child as he has often to use these in order to identify something of someone.

The Kinesthetic Sense: This 'sense' is connected with what is known as 'muscular memory'.....i.e. one often knows when one has walked a certain distance if it is an oft-travelled route. Also, one knows if a pathway is going up-hill or down. Slopes, curves, turns and angles are all indicated to us by this sense. To a blind child, it is important that he is accurate....for he could become completely disoriented and lost if he is not made aware of the functions of this sense. Training the senses, and more

he can feel. He also needs touch in order to learn Braille, Maths, to do science experiments or to 'look' at Geography embossed maps. He learns to use not only his hands, but his body-touch sensations....the ground, the walls, proximity to other persons or things. Still later, using the White cane, which is actually an extension of the index finger, he will learn to 'feel' through this cane, via the finger in order to learn about his surroundings. He also learns to sort and tidy his clothes, to lace his shoes...and even thread a needle.

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particularly this last mentioned is fairly complicated, . . . and it involved its own specific terminology and requires a great deal of practice.

Very important for 'blind' children is the training of, surprisingly, the sense of sight. The majority of blind children has at least 'light perception'. Many of them have considerably more residual vision....though they are clinically 'blind'. Many can learn to appreciate colour and the significance of colour. Others can learn to use Braille, yet be taught to use their residual vision when occupied with other tasks. These with mere light perception can be taught to use this perception to guide themselves. There is not just testing equipment to help such children, but also considerable remedial material as well....and the results of such teaching have seemingly 'improved' vision. Actually, all that occurs is that the training has made the blind child more aware.....and not really that the vision itself has improved.

4. Maximum experience: The sense of sight is the only one which can be associated with continuity. One can walk into a room, glance around and take in almost everything in a short while, not so for a blind person. Verbal descriptions are necessary, and sometimes there seems to be no alternative. However, no matter how well a sighted person may describe a station, there can be no comparison with the actual experience.....the smell of diesel or smoke, the heat of the engine, the chug-chugging or rock-rocking movements and the general smell and sounds of a railway are much more enriching. No replicas, unless very realistic, can replace the real thing...the smell and scent of a rose...and even the

the thorns...are far better than the most beautiful plastic flower. Of course, there are things which are next to impossible to convey....must be explained by models or words. The height and grandeur of a Mount Everest, the concept of 'horizon', the delicacy of tiny insects or microscopic beings...all these things can hardly be explained even in verbal terms. Still, as far as is possible, a blind child must be taught about a sighted world. The excitement of a cricket match is conveyed to a blind child as he attends the match or listens to the commentary on the radio. But how many blind children really know the positions on a field, what spin-bowling is, or why a person is given out LBW?

For blind children, the real is always preferable to the artificial or the simulated. But a simulated situation or model is preferable to mere words. However, where we are only able to use words....then there is no alternative. But we must be careful to try and use words which keep in mind that what one is teaching him is to help him in a sighted world. False or incorrect information may, later on, make him an object of pity or the laughing-stock of his group.

5. Responsibility Training: In no way should sighted persons avoid giving responsibilities to blind children. In fact, if blind children are given certain responsibilities in the school, they learn to assume leadership, they learn how to command and be commanded, to organise and be organised. They can learn to shoulder duties...both pleasant and unpleasant, to help train younger children.....in short, to develop and respect themselves. We must forget

the old tenets of education which called it 'preparing for life' and believe, a 14-year old essayist, 'I am not preparing for life. I am alive now.'

It would do all teachers, and more so those who teach the blind, good if they gave the students more chance to speak and took more opportunity to listen. It is truly well said that God very deliberately gave us two ears, but only one tongue. But we teachers, we often forget this. Does it demean us in any way if we listen, approve and even enact the often very sensible ideas of blind children?

6. Leisure-time activities: Small children occupy their time in imaginary games and thus pass their time if they do not have anything specific to do. The older child may build castles in the air.....but he is likely to feel restless. Braille reading is combersome and tiring, and therefore, a difficult habit to cultivate; no hard and fast rule can be followed as each child differs from the other. Some may enjoy crafts, others may like collecting things, or constructing things. Still others may enjoy letter-writing and pen-pals. Some children excel in indoor games. However, invariably, if a blind child is left, leisure-time becomes a major burden to him. He will not know what to do and may even use the time to brood.

What of our rural blind? They need to have some education, at least.....i.e. academics. But how much? Where? and How?

If rural blind children have to follow a 'normal' school syllabus....there is no harm....except that the wastage of time is very important. Time which can be

utilised learning something practical and useful is used in finding out the sum of a + b. Of what use is it if he knows only the circumference of the earth, but not about his family acres? Does it help to learn the names of fertilisers if he does not learn which fertilisers are useful to him? Is a more biological description of the eye useful to him? Would it not be more useful, if, coupled with his learning about the eyes, he learnt the causes of blindness and what can prevent it? Surely there is no better prophet to the villagers than their own blind persons, no more accepted person who can tell them about blindness, about health, about adult education.

The rural blind can surely be trained for half their day or half the week, in crafts, farming skills, associated dealings in as practical a manner as is possible. Self-employment and family-involvement should be stressed and their value enumerated and proved.

Do 'teachers' prove a problem? I have below a slightly exaggerated, but inherently sound idea from another teenager: 'Only headmasters would receive specialised training at full-time colleges. Other teaching would be a version of conscription, each member of society would be asked to contribute a certain proportion of his time to take a course and teach and educate others in his particular skill. In this way, those at places of education would receive fresh information from a variety of people, learning at the same time to accept people with their own enthusiasms and shortcomings. This system would also help ease the shortage of teachers and the constant bickering about wages and hours.'

Domestic Science and House Crafts which should be taught generally, to all blind students, should more especially be taught to the blind woman in villages. Many of them may become emancipated enough to work besides their men in the family, but others should at least know how to care for house and home. There is certainly no harm in the boys learning either.....so that they can help to free their women in the villages by showing that the job of 'house' is not necessarily the exclusive priviledge of women. Such classes should be conducted in a natural, relaxed atmosphere....in an actual home where possible. The key to the entire situation seems to be that we must realise 'It is part of everyday life, and an enjoyable and very interesting part.' When learning ceases to be looked upon by blind children as a chore, but instead as a sequence of processes just as enjoyable, and more fulfilling, then the educational system will have justified itself.

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2.6.0 TEACHING THE VISUALLY DISADVANTAGED FOR CREATIVE AND CRITICAL THINKING IN SECONDARY SCHOOLS

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ABSTRACT

Education of the visually disabled is a very complex and delicate activity often burdened with a load of charitable obligation and cynicism in the name of rehabilitation. Apart from the fact that teaching the visually handicapped pre-supposes a teacher's attainment of very delicate and difficult teaching efficiencies, the critical and creative power of thinking of the visually handicapped at the secondary schools should be more delicately and minutely nurtured in an ideal atmosphere of freedom and spontaneity. The present study aims at a few identifications of teaching activities for the visually disadvantaged and guidelines for teachers such as activities with specific teaching plans considering maintenance of the different stages of preparation, incubation, illumination and verification, and elimination of excessive use of gadgets and appliances for proper manifestation of creative and critical thinking.

The present researcher has a poignant experience of having an encounter with one of his blind students who has a very colourful academic career from Presidency College and the University College of Arts and Commerce, Calcutta, and who identified his teacher after a lapse of eleven years simply by his sensory experiences and prodigious power of memory. In fact, from a very close association with

his blind students for a pretty long time, the present researcher is of the opinion that blind pupils normally have the exceptional power of recalling incidents or any other subject-matter whatsoever not merely because a certain sense of rigorous concentration prevails in all their activities or thought-processes as an under-current but primarily because the creative and critical faculties within themselves remain very alert and eager by virtue of being continually exercised. Added to these are the spontaneous manifestations of finer sensibilities and softer emotions of life that always seek the prize for self-expression specially in case of those who are visually handicapped. While a specific sense of general awareness to the alarming truth of blindness is hopelessly ignored; an India, having the largest blind population in the world, after Egypt (blindness accounting for 50 per cent of all cases of physical disability) 30 per cent of India's blind people losing vision before 21 and 12,000 children below 12 becoming victims to blindness every year for lack of vitamin A - teaching the visually handicapped for creative and critical thinking has not yet been given proper emphasis in the curricular or co-curricular activities in secondary education. Unfortunately, teacher education in the specific sphere of orientation for meeting the challenge of fostering creative and critical approach to learning by blind pupils has not yet made significant advancements. Consequently, the bewailing lot of a blind student and his mute cry are lost in the aggravating either of indifference and oblivion like Milton's Samson : 'O dark, dark, dark,/ Amidst the blaze of noon/ Irrecoverably dark, total eclipse / Without all hope of day' Should we accept this tragic state of life by remaining cruelly silent and passive ?

Identification

What is of utmost importance in teaching the blind at the secondary schools is to identify the skills and sub-skills and respective components to open out new vistas of creative imagination and critical awareness. And, prior to this identification of teaching skills for better teaching efficiencies for teaching the blind students, the following may be considered :

(a) to be thoroughly and sufficiently acquinted with the causes of blindness;

(b) to be familiar with the family background from all possible points of view;

(c) to be well aware of the social atmospheres and environmental attitudes towards blind pupils;

(d) to be identified with the blind pupils' sense of fears and vicissitudes to accommodate himself with the sighted ones;

(e) to locate the reasons for unusual passivities and utter sense of loneliness and frustrations as a consequence of blindeness.

Having considered the above points of view a teacher, in order to enkindle the unique creative and critical spirit of a blind pupil, might identify the following areas of teaching activities :

Stage A : The Preparation Stage

This stage may, again be analysed into the following sub-stages :

Sub-stage 1 : The Initial stage

Sub-stage 2 : The Intermediate stage

Sub-stage 3 : The Final stage

Sub-Stage 1 : The Initial Stage

This is a very significant stage because at this stage a blind pupil is for the first time alienated from his family background to a totally new and queer world - a school. Here the agonies of a saddened heart are abruptly choaked as it might be felt by a blind student at the outset, and the greatest care and caution to be taken in this connection is to create such an atmposphere in the school as to wipe out the major points of differences between a school and a society. As a matter of fact, the seeds of frustration in case of a blind student can hardly thrive if the school becomes his very own home, his sweet second home.

At the initial stage the following areas of activities for the development of a blind pupil's creative and critical potentialities may be considered :

(i) to identify the blind pupil's trends and tendencies of behavioural changes from time to time and to define, explain and translate into reality the pioneering avenues of creativity and critical awareness manifested in thoughts and expressions;

(ii) to foster the spirit of oneness and an intimate sense of relationship between the sighted and the blind through a harmonious mode of living in the same campus under the same residential accommodation ;

(iii) to fillip the increasing spirit of creativity through introduction of performing arts like music, dance, drama, recitation, eloquence competition and so on, and to help the spirit of co-operation thrive in a joyous and thrilling atmosphere of learning;

(iv) to introduce games and sports suited to the abilities of visually disadvantaged children and to maintain a cumulative record of progress achieved from time to time;

(v) to inculcate the spirit of greatness and generosity and an over-all genuine love for the motherland by inviting outstanding personalities from every walk of life so that the spirit of creative and critical consciousness might, at the very cocoon stage, be nurtured with appropriate and sufficient exercise of emotion and numerous other expressions of mental behaviour explicit or implicit;

(vi) to arrest the significant variations of adjust-abilities, acceptances and rejections of different curricular and co-curricular activities for the visually handicapped and to suggest appropriate measures for elimination of undesirable consequences leading to stagnation, misuse and/or indifference to a blind pupil's creative and critical power of imagination;

(vii) to rejuvinate the spirit of creative genius through association of the teacher's own creativity and critical consciousness by means of appreciations, critical analyses, comments and so on.

From a study of the above areas of activities for the development of a visually disadvantaged student's creative and critical endeavours, it might apparently be

felt that there is practically no major point of departure from teaching the sighted students but the point is that while in case of the former the teacher, being in most cases blessed with normal vision, find a more or less common platform of creative and critical thinking, in the case of the latter, training of expression and specialisation of understanding the blockades in the mainfestation of creative and critical thinking of a visually disabled student remain a far cry in the arena of teaching. Obviously, what is essential to the understanding of a blind student's creative and critical thinking - to feel his very pulse for self-expression and self-criticism with a view to establishing his originality of approach, and to enkindle him accordingly - remains far away from the slovenly and slipshod method of traditional form of teaching. The following table (Table 'A') shows a monthly programme of the different areas of activities for the visually handicapped at the initial stage for a better exposition of their respective creative and critical faculties :

TABLE-'A'

Sub-Stage 1 : Initial Stage

Period	Name of activities	Specification of activities
1st week	Orientation	Introducing the visually handicapped pupils with the new atmosphere of the school through a synoptic presentation of its various programmes of activities throughout the session.

Period	Name of activities	Specification of activities
2nd-4th weeks	Group formation Indidivual and Group work.	Defining the role of teachers and pupils and distribution of programme of activities after a through and explicit explanation. Individual interviews by teachers a) with sighted pupils and recording reactions b) with blind pupils and recording reactions Group interviews by teachers a) with sighted pupils and recording reactions b) with blind class-mates and recording reactions Familiarisation with gadgets and other educational equipments specially meant for teaching the blind viz. Braille books, maps, charts, writing appliances and so on.

Sub-Stage : 2 : Intermediate Stage

Notwithstanding the fact that this stage is a mere compartmentalisation only in fact and not in spirit, it is a step forward from the initial one in which further understanding of the problems relating to creative and critical affloresccnce of the visually disabled are very properly and scientifically diagnonsed, and appropriate and timely remedial measures thereto are taken up. Naturally, this stage equips the teacher of the visually handicapped pupils with added informations and pin-pointed suggestions to discover the mystery of creativeness and critical exuberance available or likely to be available through

careful interactions from time to time.

As regards the areas of activities at this stage, the following may be considered for dealing with the creative and critical thinking of the visually disabled:

(i) to identify the fountain of each individual creative mind with the help of sufficient allowance for the freedom of exercising the activities already chalked out and implemented at the initial stage;

(iii) to arrest and analyse the peculiar trends of mental behaviour of a blind pupil - his joy, his sorrow, his manifold emotional expressions and outbursts along with other socio-psychological currents of mental development;

(iii) to identify physiological changes of the blind along with creative and critical assessments whatsoever for a balanced understanding of his insight and awareness which are productive and fertilising, spontaneous and diverse;

(iv) to be acquainted with the diverse channels of undesirable and dubious expressions of the visually disadvantaged emerging or likely to be emerging out of creativeness and critical spontaneity, and to create and establish avenues for ereadicating these sources through adequate and timely intervention with humour and with love and affection that the teacher thinks appropriate;

(v) to create a healthy atmosphere for each blind student to proud himself into creative activities and to stimulate his power of critical thinking ;

(vi) to liberate the visually disabled children from unusual and overzealous authorities by teachers, class-mates,,

parents or guardians so that the nagging and devastating sense of fear that eats up all blooming vitalities of creative and critical spirit might not, under any circumstances, get the upper hand;

(vii) to eliminate the constant diet of printed matter normally prescribed in the traditional approach to teaching that paves the path to dangerous habits of intellectual and creative torpidity particularly in case of the visually disadvantaged.

For a proper synchronization of the above areas of activities at the Intermediate stage in teaching the visually disadvantaged for their creative and critical thinking, the following table (Table B) may be considered. It might be noted in this connection that Table on 'B' maintains an almost uniform continuity with the programme of activities already referred to in Table 'A'.

TABLE : B

Sub-Stage - 2 : Intermediate Stage

A Monthly Programme of Activities for Teaching the Blind at the Secondary School for Creative and Critical Thinking.

Period	Name of activities	Specification of activities
1st week	Orientation	A brush-up of activities already planned and executed at the initial stage through a reorganisation of short-time courses by teachers.

Period	Name of activities	Specification of activities
2nd- 4th weeks	Group formation Individual work Group work	Formation of groups according to creative and critical variabilities Psychological preparation for individual potentialities : (i) sensing the attitudes (ii) understanding the interests (iii) evaluating the aptitudes (iv) diagnosing the skills (v) launching remedial measures leading to the liberation of creative and critical potentialities. Group and individual interviews by teachers. Selection of essential teaching aids and appliances. Identification and selection of co-curricular and extra-curricular activities.

Sub-Stage - 3 : The Final Stage

At this stage of preparation for creative and critical thinking, in the case of blind students the two other sub-stages already referred to are synthesised and a wider avenue is created for opening out individual brilliance in creativity and critical awareness. Whereas in the former two sub-stages acquaintance with normal and specified in-roads to creativity is generally foreshadowed, here, in case of pupils at this final stage, absolute liberty is allowed to form images and voice forth expressions leading to originality of approach with a harmonious blending of change in innovation. Here the learner reigns almost supreme in his exposition and expression oral and/or written, and the teacher is there to identify the specific intentions and obstacles of the visually disadvantaged learner.

The areas of activities at this final stage for preparing a visually handicapped learner to cultivate his power of creative and critical thinking may be stated as follows :

(i) to identify the exact uniformity of thought-processes required for the visually disadvantaged learner to launch upon a subject of creative and critical thinking and to stimulate the required procedures already being directed at by the teacher at sub-stages 1 and 2 ;

(ii) to encourage the visually disabled to stick to a particular point of interest or concept allied to his creativity and attend to his sense of awareness for critical assessment ;

(iii) to consider the dynamic urge of a visually disabled for self-expression through a systematic analysis of his real state of mental, physical and emotional maturity and the nature of the educational equipments supplied to or handled by him;

(iv) to allow an appropriate atmosphere for the visually disadvantaged learner to understand the result of his own activities as quickly and spontaneously as possible and to establish thought-processes as his very own, that is, originating from himself and from nowhere else;

(v) to enable the visually handicapped student to be well-adjusted with the inherent capacity to systematize the process of creative endeavour and critical thinking, the objective being to be prepared for a deeper and more worthwhile landmark of creative spirit and critical approach.

The above-mentioned areas of activities for the preparation of visually disadvantaged pupils in achieving

creative and critical heights may be tabulated as follows :

TABLE : C

Sub-Stage - 3 : The Final Stage

A monthly programme of activities for teaching the visually disadvantaged pupils at the secondary school for creative and critical thinking .

Period	Name of activities	Specification of activities
1st week	Orientation	A brush-up of activities already planned and executed at the initial and the intermediate stages of preparation and a summing-up for synthesis of creative and critical thinking.
2nd-4th weeks	Individual work Group work	Individual work : i) Identification of individual potentialities of a visually disabled learner through intimate association inside and outside the class-room by the teacher. ii) Appreciation of a visually disadvantaged pupil's creative and critical thinking however insignificant and trivial it might appear, and creation of a joyous atmosphere through the teacher's own contribution to creativity and critical approach to thinking. iii) Maintenance of dramatic suggestibilities to heighten the visually disabled pupil's spirit of creative adventure, and pointing out the possible

avenues of worthwhile novelities that will ultimately glorify his approach to creative and critical thinking.

Group Work :

i) to understand and appreciate the different creative and critical approaches to thoughts and imaginations, and the innovative styles of creative and critical brilliance of other pupils .

ii) to share the common evaluating principles of creativity and critical standards, howsoever reflected.

iii) for comparative study of creative and critical thinking of the sighted and that of the visually handicapped.

Stage B : The Incubation Stage

At this stage the visually disabled pupil requires ample protection from an unduly narrow and short-sighted view of intellectual and imaginative discipline from which his teachers occasionally fall back on as a line of self-defence in the name of pupil-discipline. In fact, loss of imaginative and intellectual freedom in case of a visually disadvantaged student automatically hampers the incubation stage of his creative and critical thinking. What is very essential at this stage is to protect him from all discouragements in the form of analyses and data-collections, guessings and undue hypotheses showered upon him torrentially by teachers in excitements, that ultimately kill the imaginative

and intuitive potentialities of the creative and critical mind. An eye to mere academic success for attainment of stereotyped proficiency has hardly any worthwhile contribution to the teaching of the visually disadvantaged who, alas, are even now considered more pitiable than exceptionally powerful at the incubation stage of creative and critical thinking.

Stage C : The Illumination Stage

This stage is one of suddenness, of elation when, after a prolonged thought-process, a visually disadvantaged pupil finds the crystals of creative and critical thinking. The teacher makes a quick and thorough enquiry of all presuppositions leading to the appex of illumination, since they might fade away in the march of time, and allows his pupil to share the joy of creativity and critical awareness through criticism and evaluation.

Stage D : The Verification Stage

At this stage the teacher places before his visually disadvantaged pupils his own contribution to critical and creative thinking for verification and comparison and for numerous other points of qualitative analyses.

Guidelines

From a study of teaching the visually handicapped for creative and critical thinking in secondary schools, the present researcher considers the following points very essential to the promotion and successful contribution of creative and critical thinking :

(i) to allow the visually disadvantaged pupils to have a free and easy encounter with his teacher under any circumstances;

(ii) to allow a free interplay of ideas between the sighted and the visually handicapped pupils to become disciplined thinkers;

(iii) to allow the visually disadvantaged pupils to foster and intensify their inner creativity and critical consciousness through consistent and well-directed exercise of freedom;

(iv) to eliminate an excessive use of scientific and technological gadgets that more or less destroy creativity through repetitive, fractured and unusually simplified operations often devoid of meaning and context. External interruptions and consistent stop-gaps often blur the aesthetic and delicate membranes of critical and creative thinking of the visually disadvantaged;

(v) to launch curricular and co-curricular activities like giving dictation, reading out books, newspapers, journals, arrangements for performing arts - sports and games, dance, drama, mime and so on, for the visually dsabled pupils with an eye to creative and critical endeavour ;

(vi) to re-orient classes like geography, geometry, weaving, woodwork etc. with a greater amount of superior scientific tools and appliances, and to allow the visually handicapped students to have every opportunity to identify, test and modify them and suggest improvements;

(vii) to eliminate every possibility of conditioning a visually handicapped pupil to any other apparently superior concept other than his own, which frustrates his own critical awareness and creative ambition and debars him from understanding the fact that we are as we are creative and critical in thinking.

Synthesis

The present study is expected to have some impact on teaching the visually disadvantaged for creative and critical thinking in secondary schools in spite of the fact that a comparative approach to creativity and critical awareness in case of the visually disadvantaged and that of the sighted might reveal newer and more comprehensive avenues of educational process; but, then, the reality of the utter indifference to education of the visually handicapped in general and educationfor bringing out their creative and critical potentialities in secondary schools in particular can hardly be ignored. Besides creativity and critical brilliance that should normally ensure rehabilitation especially in case of visually disabled persons but painfully denied in India, what is a sordid fact is that only a few voluntary organisations really feel for them and provide opportunities for livelihood*.

Since teaching is a very compelx procedure, and teaching the visually disadvantaged children in particular is a more complex and delicate one, what is primarily required is a sharing of views and opinions among researchers and outstanding personalities devoted to the teaching of the visually handicapped for critical and creative thinking. Moreover, the administrative procedures to cover this particular area of education have not yet undergone sufficient scientific and objective co-ordination. What however, is of immediate necessity is a co-operative endeavour to identify and evaluate the creative and critical thought-processess of the visually disadvantaged pupils by means of necessary

*The Oxfam provided services for 72 blind persons in West Bengal, (All India Radio, Calcutta: Local News on August 18, 1980).

identification, implementation, specification, gradation and integration. Unfortunately, teaching the visually disadvantaged in secondary schools in India has not yet been geared to that height of excellence. Let light be no longer denied to those who might take up the challenge of 'total eclipse' . Let us, as teachers, show a greater amount of love and affection for them. Let them be allowed to march forward as glorious citizens of a better India by dint of their creative and critical excellence.

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3.1.0 - EDUCATION OF THE DEAF

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The paper approaches social, economic and psychological rehabilitation of the deaf as equivalent to education of the deaf. The utility of sense training includes auditory training, procedures of voice culture, speech breathing exercises, method of speech teaching and auricular method of teaching with certain modifications have been included in the paper. From the data from our Audiological Clinic of the Calcutta Deaf and Dumb School, the author has found that 5% of the deaf have a hearing loss of less than 60 dB, 31% have that between 60 dB to 80 dB and 69% have losses of 80 dB or above. The paper also includes a system of classification of the deaf population. A comparative study of group hearing aids and individual hearing aids are significant in the early years preferably between 9 to 24 months. Reasons for an integrated system of education have been given. Some investigations made in the Research Departments of the Clarks School for the Deaf, U.S.A. by the author on the basis of Kymogram have been cited. The investigation utilises types of speech, error of the deaf by Hudgins and Numbers. It has been suggested that economic rehabilitation of the deaf must be supported with craft education according to aptitude, interest etc. and psychological rehabilitation depends on their success at social and economic level.

Education of the Deaf chiefly means their rehabilitation at Social, Economic and Psychological level.

SOCIAL REHABILITATION:

In the formative period children learn speech and language both for reception and expression through hearing. The hearing handicapped children cannot hear and are not able to receive impression of spoken language and consequently they cannot acquire speech as their normal hearing brothers. The deaf children can see, they can feel, they can also possess residual hearing of different quantities. We have therefore, to resort to multisensory approach for the education of the deaf. The senses of touch, sight and hearing are to be trained for teaching speech and speech reading.

SENSE TRAINING:

The ability to perceive similarities and differences is the first step afforded to a deaf child using sense training material. Formerly sense training works were confined to the training of the senses of touch, kinesthetic and sight. Now auditory training has been included in the sense training work as the sense of hearing is now being utilised along with sight, touch and kinesthetic sense for the development of speech and speech reading.

This feature of sense training work is likely to render easy the acquisition of the following habits

P.T.O.

which in their turn may be helpful in speech teaching and lip-reading or speech reading:-

1. Attention
2. Concentration.
3. Observation.
4. Imitation.

VOICE CULTURE:

Formerly to secure voice the child was asked to compare and contrast the chest vibrations set up in chest of his teacher with his own and learnt by imitation to set up similar chest vibration in his own chest. Voice culture was performed through isolated vowels.

Speech sounds were not presented .till good voice was obtained. Consequently teaching of speech sounds was delayed. The writer worked with the deaf for a long time and also on his experience from the U.S.A. felt the necessity of modification of procedure of voice culture as stated below:

1. Voice should be obtained by Babbling or other informal methods.
2. Mono-syllabic words or syllables instead of isolated vowels should be presented for voice culture.
3. Balloon may be used for cultivating good voice. When a teacher babbles near the balloon, vibration is produced on the balloon and the children feel the vibration through their fingers and then they try to imitate voice.

We consider happy, relaxed and playful mood condusive to the production of good and natural voice. Early admission and early use of hearing aid have simplified the procedure of obtaining good voice.

BREATHING EXERCISES:

Formerly the teachers of the deaf had the impression

that breathing exercises are conducive for acquiring good speech. It has been proved by Dr. Hudgins that speech breathing exercises instead of mere breathing exercises are considered helpful as they induce proper breathing co-ordination and are helpful in developing continuity and natural speech.

Formerly the teachers of the deaf had the impression that the lower chest type of breathing is the best type of breathing for producing good speech. Sibley Haycock of England is in favour of lower chest type of breathing for good speech. The writer investigated this aspect in the U.S.A. and had a Kymogram in the Laboratory of Clarke School for the deaf in the U.S.A. and in the speech of the writer it was found that clavicular breathing took a prominent part although it was a mixed type of breathing. It is found that a normal person can speak well with any type of breathing. There is no sensible reason why the deaf will prove an exception. It would be [illegible] useless to draw the attention of the pupil and to make an effort for that end. Hence such attempt was stopped and the deaf children are now benefited with this finding.

SPEECH TEACHING:

The analytic or element method of teaching speech was followed in the past. The same method was applied to the deaf children without consideration of differences existing in individuals. Now it has been realised through our experience that many individual differences are present in deaf children such as degree of hearing loss, type of hearing loss, intelligence, age at onset, presence or absence of other handicaps etc. which should be taken into account in planning a developmental speech programme for them. The writer on his return from the U.S.A. introduced the syllable method of speech teaching in as much as this is in conformity with

the process of acquisition of speech by normal hearing children. We present syllable or words synthetically for imitation. We accept if a child can successfully imitate them. If any one fails to utter any word or syllables synthetically, we then try analytically.

THE USE OF HEARING AIDS IN THE EDUCATION OF THE DEAF CHILDREN:

Formerly the methods of education were based on the superficial assumption that the hearing impaired children had no useful residual hearing. This theory was exploded in Great Bretain in 1899 as a result of the researches in the education of the deaf made by Dr. James Kerr Love.

The writer was a student of Dr. C.V. Hudgins, Director of the Research Department of the Clarke School for the Deaf, U.S.A. in 1954-55 when he had the opportunity of closely studying his research works and his findings which have conclusively proved the benefits ever derived by the profoundly deaf (i.e. 80 dB above in the speech range) as regards speech intelligibility, speech perception and acceleration of educational programme from an acoustic training procedure. Dr. Hudgine opines that speech perception is improved when auditory and visual perceptions are combined and the ear supplements the eye. Dr. O'Conner, Superintendent, Lexington School for the Deaf, U.S.A. is of the opinion that children with hearing lossess upto 90 dB can benefit from hearing aids. The writer on his return from the U.S.A. in 1955 suggested the extensive use of hearing in the cases of children upto 90 dB hearing level with the help of hearing aids and also for introduction of systematic auditory training.

In India unfortunately we have no reliable data regarding the size of the deaf population and their classification. The deaf were last enumerated in 1931 censes when

the number of the deaf was 2,30,000. Recently we came to know from the statement of the Government of India that their number is 2 to 3 million.

The Calcutta Deaf & Dumb School has an Audiological Clinic equipped with a pure tone Audiometre for measuring hearing level. We conducted Audiometric testings with the students of the Calcutta Deaf & Dumb School. We observed the following classifications:-

(I) Hard of Hearing Group.

Hearing loss less than 60 dB in the speech range, i.e. 500, 1000, 2000 C/S.

(II) Partially Deaf Groups.

(Hearing loss in speech range - 60 dB - less than 80 dB.)

(III) Profoundly Deaf Groups.

80 dB and upwards in speech range.

From the data that we have collected we find that about 31% of the students have average hearing loss less than 80 dB in the speech range and about 69% have losses of 80 dB or more. Out of the 31% mentioned above 5% have average hearing loss less than 60 dB in the speech range.

According to the data now available, it may be inferred that out of 4 lakhs of impaired hearing children we may have 20,000 hard of hearing children (5% of 4 lakhs less than 60 dB hearing loss), 104,000 partially deaf children (26% of 4 lakhs -60 dB-less than 80 dB hearing loss) and 276,000 profoundly deaf children (69% of 4 lakhs -80 dB and upward hearing loss).

The electrical hearing aids are mainly of two types:

1. Individual hearing aids and
2. Group hearing aids.

We have been using both the types in the Calcutta Deaf & Dumb School.

A comparative study of Group Hearing aid and individual hearing aid reveals the following:-

1) Group Aids are more powerful than the Individual aids.
2) Group aids are generally mains operated and individual aids are battery operated.
3) Individual aids are more delicate than the Group aids.
4) A wider frequency response in Group hearing aids than that for individual hearing aids.
5) Group hearing aids are more suitable for class work than the individual hearing aids.
6) Less distortion and less room interference for Group hearing aids if spoken directly to the mike even in a room not accoustically treated.
7) The users of individual aids have the advantage of free movement and out door use. The improvements of individual hearing aids are increasingly reducing the areas of difference.

The Calcutta Deaf and Dumb School has all the twenty three classes equipped with group hearing aids. It has also 77 individual hearing aids.

Hearing aid receivers may be of two kinds:-

1) Air conduction receivers.
2) Bone conduction receivers.

Deafness may be Conductive or Sensory neural or mixed. When the defect is with the middle ear i.e. conductive type and the internal ear is intact, bone conduction type receiver was preferred in this case. Air conduction receiver is indicated in the case of the Sensory neural type of deafness. It is now the consenses of opinion of the authority that the air conduction receivers work more effectively in majority cases of both the types. The

conduction receiver is less efficient than the air conduction receiver for high frequencies (2) Due to the impedance of bone and skin, a considerable amount of power is required at the receiver to produce an audiable signal.

AUDITORY TRAINING:

The importance of systematic auditory training can not be over emphasised. It is a procedure through which a deaf child acquires the ability to use his residual hearing to the maximum extent for production and perception of speech. Its aim is mainly to develop skill listening in comprehending speech that is imperfectly heard. Ewing stated "the acquisition of speech readiness is always quickened by auditory training that leads a child to use his capacity to hear especially in relation to speech. Spontaneous speech is the direct result of speech readiness". In this connection we should understand how the capacity to distinguish different sounds is developed in the case of normal hearing children. At first the baby does not recognise the differences between different sounds. He learns to recognise them by stages. Likewise the auditory training is administered to the children with impaired hearing by stages. The rational process is from easy to difficult. That is the distinction of dissimilar sounds that are easy to make are presented first for discrimination. The four main stages of auditory training are:-

1) Awareness of the presence of sound.
2) Discrimination of gross sounds.
3) Discrimination of vowel sounds.
4) Discrimination of speech sounds.

Auditory training is imparted to the students of the Calcutta Deaf and Dumb School from the age of 4½ years.

The classes are equipped with numerous auditory training materials interesting to the children. Record players are also used. The programme of the school includes the following:-

a) Recognition and discrimination of gross sounds.

Various musical instruments viz. drum, bell, whistle, flute, horn, pitch pipes, piano, cymbal, banjo etc. and many other noise producing toys covering a wide range of frequency are presented to young students for consciousness of sound and also for building up their ability to recognise their differences. We have been using H.M.V. sherpa Record Player battery operated and Gerrad Record Player, mains operated, for auditory training. Recorded music mainly rhythemic, sounds of different animals and birds and different sound effects viz. telephone bell, ocean waves, flowing river, thunderstorm, rain etc. are played back and fed to the students through their earphones. The students discriminate and associate those sounds with their sources.

Then vowel sounds are presented for discrimination through listening. Thereafter speech sounds are given for discrimination - first two words selected for auditory training are those which differ as to number of syllables.

Simple sentences which differ as to length and number of syllables are then presented for discrimination.

Type and degree of hearing loss ascertained by Audiometer may indicate the following:-

1) Cues are available to the listener.

2) Cues can be made available to the listener through training.

3) Cues are not likely to be available to the listener at all.

The qualitative improvement of education of the hearing impaired child is dependent on effective utilisation of hearing through hearing aids in the early years. First

three years of child's life preferably 9 to 24 months span is hi hly important and i deed the formative period and can also be attributed as a period of "speech readiness" when his organism is most open to speech and language stimulation. Edith Whethnall and Fry called the first year as period of "readiness to listen". During this period the faculty to learn discrimination is so great that the hearing impaired child can learn to use cues in learning to speak which are no longer available for the older child. Edith Whetnall is of opinion that no deaf infant is too young to wear a hearing [illegible] to crawl i.e. at the age of 8 or 9 months. S. Richard Silverman of U.S.A. stated "the early years are optional for establishing the foundation for the child's acquisition of communication and his emotional muturation". During early years environment plays an effective part in creating moulding and shaping the personality. Impression received during this period inhore in the child and produce prevading and lasting results. The organs of speech including voice remain facile and soft and are essentially receptive. The mind and muscular skills involved in acquiring speech and language fabourably react and are condusive and congenial. During this period there is a natural urge and stir to acquire speech and language. If we do not teach him to use his hearing from the early years, he gets in the habit of paying no attention to it. But we are to develop his interest in hearing. It should be noted that all the hearing present at birth is a reflex and hearing is also acquired by learning. All sounds are at first noises without meaning and are learnt from reflex hearing to comprehension hearing. Early detection and diagnosis is therefore very important. The parents must be taught to play their part - they must understand/the need to learn to hear

during his very early years. An useful utilisation of his early years will reduce the difference that exist as between a normal child and an impaired hearing child. The differences that do exist may to a large extent be ascribed, to the neglectful use of pre-school childhood. Nevertheless, unfortunately, in our parts of the country, this period has not been profitably utilised as yet. The programme for effective utilisation of this period would be coupled with the necessity of establishing clinics with a programme for parent guidance to successfully and effectively ensure early training.

Expert guidance for parents of impaired hearing children is now available in the west from a number of institutions and organisations. In the U.S.A. correspondence course of John Trady Clinic for helping the parents may be mentioned.

I had the fortune of visiting Russia and Japan recently. I was very much impressed with their pre-school programme. In Russia about 14 years ago parents as a rule placed their impaired hearing children at special Kinder garten of special pre-school homes. But in the last few years research has shown that to bring up a impaired hearing child in the family has its advantages over even the best equipped specialised educational institutions. Today many parents take advice from the Surdopedic Centres and the University for parents for training in the early years of their impaired hearing children. A council has been set up for helping the parents of the handicapped.

Japanese mothers have been encouraged to train their deaf children even from their tenth month with the help of hearing aids.

The writer on his return from the U.S.A. introduced Silent Reading in the Calcutta Deaf & Dumb School. It is easy to reach the deaf mind. Recognition of print by

associating printed words, phrases and sentences with pictures is quite lively, easy and interesting.

Formerly printed words, phrases and sentences were not presented unless and until the students could lipread them and speak. The presentation before their ability to speak and lip-read was considered as misapprehension of the fundamental principles of deaf education. The writer could justify the necessity and efficacy of its introduction which resulted in remarkable improvements in lipreading reading and development of language.

INTEGRATED SYSTEM OF EDUCATION:

Recently trend has developed of educating the hearing impaired children in ordinary schools for hearing children.

The hearing impaired children integrated in ordinary schools for normal hearing children will derive social and psychological advantages and it will end the segregation of the hearing impaired children and they will be in normal environment.

There are differences of opinion of the educators of the hearing impaired children as to whom, where and how this system of education can be carried on successfully.

The writer made some experimental works in Hudgins Laboratory in the U.S.A. regarding experimental phonetics through kymograph about effects of consonant closure upon oral pressures and some of the important results are stated below the clear concept of which will be helpful to the teachers for teaching speech to the deaf children:

(1) Air pressure in movements varies generally with the degree of closure of the consonants directly proportional.

(2) Air pressure for arresting consonants have more air pressure than the releasing consonants.

(3) Air pressure for non-vocalised consonants have more air pressure than the vocalised consonants.

(4) Air pressure for the aspirated consonants have more than the non aspirated consonants.

(5) There is little air pressure for the nasal consonants.

REGARDING ADJUSTMENT OF CONSONANTS:

From the point of view motor phonetics the question of adjustment can be dealt with more scientifically. The modifications of the following abutting consonants:-

(1) L is modified by Th as in Altha

(2) L is modified by T as in Ulta

(3) N is modified by T as in Kantak

(4) N is modified by Th as in Anthar

(5) N is modified by Ch as in Tin chatak

(6) Other examples such as Ak Gachha (Aggachha), Chok galo (choggalo) and examples of abutting pairs. In such combinations the surd becomes sonant - voice from the preceding vowel may invade the consonant that follows. Only slow careful speech preserves the prescribed form.

We have five nasal sounds corresponding to five bargas. The rules of combination enjoin that in combination the nasals combine in their own group.

Hudgins and Numbers found two general types of errors of the speech of the deaf (1) Errors of articulation involving consonants and vowels and errors of rhythm.

Consonant errors were confined to the following:-

1. Failure to distinguish between vocalised and non-vocalised consonants.

2. Consonant substitution.

3. Excessive nasality or lack of it.
4. Malarticulation of compound consonants.
5. Malarticulation of abutting consonants.
6. Non function of arresting consonants.
7. Non function of releasing consonants.

Vowel errors were:-

1. Vowel substitution.
2. Malarticulation of dipthongs.
3. Dipthongisation of vowels.
4. Neutralisation of vowels.
5. Nasalisation of vowels.

The rhythm of speech samples were of three kinds:-

1. Correct rhythm.
2. Abnormal rhythm.
3. Non-rhythmic

The teachers of the deaf are to note carefully the types of general errors and to correct them when occur after their acquisition of speech in a special way. If this can be done effectively the deaf will be able to maintain intelligible speech.

ECONOMIC REHABILITATION:

For economic rehabilitation the deaf must be equipped with Craft education according to their aptitude, interest and family background utilising their unimpaired capabilities.

PSYCHOLOGICAL REHABILITATION:-

Of all the problems the psychological rehabilitation of the deaf is the most difficult one and requires a very delecate treatment and depends to a large measure on the success of the deaf at other two levels viz social and economic level and their understanding at home, school

and environment. People in general should also be alert as to their duties towards the deaf. A conscious feeling of sympathy for the deaf in the minds of the people may go in great way to secure their psychological security.

The severely/profoundly deaf children were diagnosed as suffering from sensori-neural deafness, which is irreversible and incurable. In this paper, they will be referred to as Deaf children.

The histories of 400 children has been recorded with a view to studying the causes of deafness in India. These children had become deaf at birth or before the age of speech development and therefore had no speech at all. They are the children of the country who are labelled as "Deaf and Dumb". There is no medical nor surgical treatment for such cases, and this type of deafness presents a problem, not only to the family, but to the entire country, as world statistics have shown that the incidence is approximately one deaf child per one thousand live births. In a population of 700 million, there will be 700 thousand deaf and dumb children.

The Object of the Research

In view of the said state of affairs, it was decided to carry out Research on the Deaf child's Educational Treatment and Habilitation. The work presented deals with Special Education.

Special education has been defined as "an enriched form of general education aimed at enhancing the quality of the lives of those who labour under a variety of handicapping conditions, enriched in so far as it makes use of specially trained personnel, who are aware of the application of methodological advances in education and of technological equipment to offset certain types of handicap" (Report of an expert meeting on Special Education, held at UNESCO 5th-7th December, 1968).

The Special Educational Aspects.

The Stephen Research school was started with four

deaf children. From their audiograms it was known that these children had some residual of hearing at low frequences, which could be stimulated with powerful hearing-aids, and therefore they were fitted with individual aids with receivers in both ears, and having an output around 130 dB SPL. The Group Hearing-aid that was used for the group of children was imported in 1957. Then arose the problem of which language to teach the children, as their mother tongues differed. The parents decided that since their off-springs had no language at all, it would not matter if I taught them to speak English, as they themselves spoke English.

The single greatest problem the deaf child has to face is a language disability. It has often been said that to teach a deaf child to speak is a minor miracle because the very channel through which a human being learns to converse has been denied to him, that is the sense of hearing. Teaching a deaf child to understand and use language is one of the most challenging areas in Special Education, and the most important as it has a direct influence on all learning and living, man being a social being. At the same time, it is the most difficult, most misunderstood and ardous, excepting of course the education of the multiple handicapped deaf. Lack of language limits academic, social and even vocational achievements, causing the deaf to surmount further handicaps.

A thorough study into the acquisition of the language arts by normally hearing individuals was carried out. A baby hears the language of his environment and at the age of 1 or 1½ years he speaks a few words meaningfully. He soon learns that when words are put together in different arrangements, they carry thoughts, desires and comments. By the time he is 4 years old, he has mastered intelligible and complex

grammatical speech. In this relatively short, but formative period, he has acquired the foundations for the infinitive variations of adult language. B. Tervoort[2] says "These are critical and irreplaceable years". Lenneberg[3] states that children have an innate, maturationally controlled capacity for developing language, provided they are exposed to an adequate sample of the language during the very early years.

The fact that a child is deaf, does not mean that he is not endowed with the same predisposition to learn, as the normally hearing child, but what it does signify is that without early and adequate amplification of speech sounds, he will not receive the adequate sample of language that is necessary for him to utilize this inborn capacity.

Various media were used to make the public and all those closely connected with the work of the deaf, medical and social, acutely aware of this fact. The results were successful and now deafness is assessed and diagnosed in the very young. Home Guidance has become a part of the research programme. Pre-school children attended evening classes with their parents and it was proved that with one year's training, the deaf child benefited greatly in the receptive aspect of language acquisition, before entering school. This project was supported by the Central Government.

The Special Educational Procedures.

The approach that was used was Multi-sensory. The auditory, the visual, the tactile and the kinesthetic senses were significantly trained.

(a) The auditory approach.

Auditory training is to enable the deaf child to make use of whatever residual hearing he has. Electronic aids

used are (i) the individual hearing-aid which is worn on the body, (ii) the individual speech trainer, which is used in class-work for one pupil by the teacher which may be either battery operated or mains operated, (iii) the group hearing-aid, which is non-portable, mains operated and is used for group teaching, (iv) the Loop Induction System which has an amplifier, a teacher's microphone and a wire around the room, which creates a magnetic field and is used in conjunction with the child's individual body-worn aid, with the indicator on 'T' (telephone). This system is used for informal training in the Nursery classes, as the children are free to move around the room, and still hear the voice of the teacher.

The problem of developing auditory language in deaf children is not so simple.(4) The Research School has drawn up a series of Developmental Stages the children have to go through before being exposed to the Sounds of Speech. The general aims are to stimulate every remnant of residual hearing, to develop tolerance for loud sounds, and to enjoy the rhythm of music, and thereby develop a natural, relaxed approach to speech development.(5)

(b) The visual approach

The young deaf child has to use his eyes in learning to understand spoken language. This referred to as lip-reading. This skill must be developed as early in life as possible, before speech teaching, and must preferably start at home. In the initial stages, there are many do's and dont's about lip-reading, which have to be made known to parents, family members and teachers. In school, it may be divided into two categories (i) General lip-reading, which the child encounters in a

natural way all the time, in different situations,
(ii) Specific lip-reading which is geared to the comprehension of specific words in planned situations. Each word should be presented in sentences to establish the understanding of as many language structures as the child needs. Specific lip-reading must be combined with the use of amplified sound.

(c) The tactile or vibratory sense is made use of by teachers in school. If a child is not able to produce certain sounds through the use of the visual and auditory channels, then the child's fingers or hand is brought in contact with the teacher's face or throat with the other hand on his own, while he watches in a mirror the visual pattern he has to match. Amplified sound is combined here also.

(d) The kinesthetic sense is developed by the child himself when he learns to get the feel of certain articulatory movements of the organs of speech.

The whole situation is not as simple as it appears on paper. Thousands of repetitions are needed, as we are using abnormal avenues in attempts to help the child overcome the handicap of the lack of language.

The Research School has developed systematic, progressive approach to train all the five senses, using both custom-made and teacher-made materials. Twenty-two speech charts and 20 language lessons have been prepared for early training in Speech and Language. One new class was added every year, increasing the number of students. Normal school text books were used, as the whole programme of studies and curricula followed closely that of normal schools, with additional lessons in Speech and Language.

In 1964, when the first group of nine deaf pupils had passed the IV std. it was decided to start a Secondary Department. There was and still is a lot of opposition from the Social Welfare Department of the State. The authorities wanted us to start Vocational Training for the deaf, in accordance with the traditional ways of educating the deaf. This matter was given serious thought. Having started the education of these students early, their ages ranged from 11-14. It was felt that they were too young to decide on which vocation to choose and would be forced to accept whatever was available. They were far too immature mentally, educationally, socially, emotionally and even physically. They needed to develop abstract language, which would help them gain the confidence they needed for integration into a world of work.

Education is a comprehensive word. It covers the development of the child's potentialities, not only academically, but also emotionally, socially and of course economically. Education implies much more than just the learning of school subjects, and Special Education has an even deeper and more profound meaning. It must have a stronger impact on those exposed to it and must be of far greater significance for the handicapped individual than ordinary education is for normal people. These bold statements have had the lamp of experience, which has been burning now for 24 years to guide me. Many people and even the parents themselves, felt the children should not be burdened with heavily-loaded high school subjects.

Intelligence tests administered to the students and they were found within normal limits. This convinced me that with hard work we could surmount all difficulties. A secondary education, it was felt, would bridge the way from insecure, unstable adolescence to mature adulthood.

It was up to us to settle the goals, and knowing the children and teachers, so well, I was confident that with God's help our research into higher education for the deaf would be successful.

The broad objectives into higher education for the deaf are generally the same as those in the education of all children. However, the techniques used differ. The fundamental problem was the learning of abstract language by the child. Deaf children understand concrete concepts but experience great difficulty with abstract thoughts, figures of speech and idiomatic expressions. The text books were the same as those for normals, as it was decided to prepare the students for the Secondary Schools Certificate Examination. The children had to learn a Second Language, and Hindi, being the language of the country, was chosen.

Teachers had to be trained and an in-service programme was initiated. The National College of Teachers of the Deaf recognized our need and the papers were sent to the University of Bombay, who acted as Vigilantes.

The Secondary Department was started with the following goals (1) to prove that deaf children are not mentally slow intellectually, but only because of their deafness, hampering their benefiting from the language around them, which in itself is educative, (2) to serve as a laboratory for educational experimentation and change, by developing innovative instructional materials, and using more audio-visual equipment, as the slide and filmstrip projector the overhead projector, whereby the children could lip-read the teacher and at the same time read the projected written word, the movie projector and tape recorders connected with head-phones, (3) to be a stepping stone for integration into normal colleges.

The Advantages of a Secondary Education

1. This planned secondary education gives the students more years for improving their language, which is the root of all their problems. There were many drop-outs after Std. VII, and a study into their adjustment into society revealed that their intellectual malnutrition affected their social life, causing emotional imbalance and frustration, except for those who were rich enough to be self-employed.

2. The curricula is geared to developing not only their powers of reasoning through New Mathematics and Science, but gives the students a wide knowledge of the world around them through social science. It helps develop pre-vocational skills, through Typing, Book-Binding, Needlework and Art. It also helps them to serve others through Scouting and Guiding, and Physical Education betters their health. As High School students they are eligible to compete along-side normals in the High Schools Sports Meet which is held every year.

3. The S.S.C. Certificate is their passport into Colleges.

4. Last, but not the least, it serves as a practice teaching centre for teachers of the Indian Institute for Teachers of the Deaf, which was started in 1974. The institute is affiliated to the Bombay University and the candidates appear for the Dip. Ed. (Deaf) Examination.

Results

Since 1972, 34 students have passed the Secondary Schools Certificate Examination, only 2 have failed;

schools certificate Examination, only 2 have failed; 94% have made the grade of these 34 students, 4 entered Gallaudet College, Washington D.C., one has passed the B.A. and one is attempting the M.A., 2 are still in their third year. 14 students joined Polytechnical, Commerce, Arts and Home Science Colleges. 53% have been giving the opportunity of a College Education, alongside normal students.

These successes prove that Indian Deaf children possess the potentialities for Higher Education, which have to be developed by far-sighted people.

3.2.12

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3.3.0 TEACHING LANGUAGE TO THE DISABLED - A NEGLECTED OPPORTUNITY OF MEDICAL LINGUISTICS.

B Y

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ABSTRACT

Rehabilitating those with language disability is an exacting, essentially explorative and a prolonged task. An ideal programme depends on a thorough knowledge not only of the patient's disabilities but also of his residual abilities. It is in pinpointedly bringing out these sets of information for diagnosis as well as planning for therapeutic procedures that the insights and practices of modern linguistics are bound to be of great a source with is as yet untapped. It is unfortunate that in an area like language disfunction we consult a host of specialists like speech therapists, surgeons, clinicians, educationists, psychologists etc. and generally ignore the linguist whose main business as is now being practiced is quite dynamically to understand language in its development, normalcy as well as dissolution with a physiological bias throughout. A highly sophisticated discipline of structural linguistics exists and quite a number of break-throughs such as cybernetic modeling of language functions by brain are also coming up. The present clinical and medical personnel are hardly aware of this evolution that is taking place

in an area that is very much pertinent to them. An attempt is made in this paper to bring this point out with an empirical study of cleft palate speech and the relevance of phonetics, the simplest branch of linguistics.

Introduction

The cleft palates, the cerebral palsied, the mentally retarded and the aphasiacs are the four categories of the disabled that demand specialised efforts for teaching language. Of these, rehabilitating the cleft palates is relatively simpler, for their problems are primarily peripheral. Among the others these tend to be neuromotor, neural, cerebral and/or psychogical problems. Despite this difference, it is of some advantage to discuss all of them on the common platform of modern linguistics. The paper discusses this larger problem of the relevency of modern insights of linguistics to all these categories with some case-studies of the cleft palates as the starting point.

Despite the existence of many studies 1,8,11,12 on cleft palate speech, at present, an impression does arise that a greater and more consistent consideration of the linguistic aspects of the situation remains not much emphasised and may prove beneficial 2,4,5,7,8,10. In fact some recognition of this lacuna is appearing only in a few recent works. The preeminent and usual communication difficulty of a cleft palate patient is in speech (and not much in language) and that too in its final execution neither much in appreciating the actual acoustic difference per se among his own defects nor,

presumably, in the capacity to send the requisite neural orders to the effector points. It is a 'pure' error in the last step of the executive chain of expressive speech and results in errors in articulation and occurrence of nasal escape on nasality in the speech flow at places where they are not required linguistically. The surgical repair of the defect removes the anatomical hindrance to correct articulation and non nasality but does not restore the defective articulation automatically, specially if the patient is an adult as his defective kinematics is already much habituated. The immediate benefit that may accrue in some cases is that of nasality and that too, of isolatedly uttered vowels see below). Speech theraphy is therefore a necessary corollary to post-operation here.

This therapy is best built on i) accurate appraisal of the cleft palate's actual errors before and after operation with reference to specific phonems phoneme clusters and nasality as they occur in isolation as well as running speech ii) devising a course of training exercises in the light of this appraisal and iii) administering it over a length of time, keeping track of the progress throughout, till the habilitation is complete. It is held that all these objectives can be served better if we follow a systematic procedure related to the phonetic structure of the language of the patient as developed here.

Material

Thirty nine cases were examined in this line. These are of the following categories; (a) cleft palate and cleft-lip (N=24), (b) cleft lip only (N=3), (c) cleft soft palate only (N=2), (d) Tonguetie (N=2), (e) delayed language (N=1), (f) aphasis (N=2), and (g) psychotic (N=1). All showed errors in stuttered speech due to their respective applications and all were subjected to comparable tests for articulatory performance in their own language. Categories (e), (f) and (g) are not reported here. They were examined whereever possibible before as well as after operation. Apart from the psycholinguistic case, the remaining were referred to by the Department of Surgery. Their age group ranged from 3 to 19 years, their languages were Tamil, Telugu, Malayalam, Hindi, Vietnamese and English. The routine imformation was throughout recorded in a single proforma that included data on family status, educational qualifications, occupation, pedigree, siblings, dominant handedness and clinical notes. None of them except (e) and (g), were mentally retarded and their language reactions were normal as assessed by general conversational response as well as routine language tests, where needed. In fact, a few cases were exceptionally bright as measured by i) their school reports, ii) general smartness of the response and iii) tests of matching the colour patterns in multicoloured blocks (in the case of young children) as per oral instructions.

The patient population thus represents a 'homogeneous' group of pure kinematic defects of articulation and nasality. The three tongue-tie cases and only one of the cleft palate cases (Case No.8) indicated the possibility of a genetic problem, their siblings or pedigree showed a similar affliction. The rest did not show any such indication.

The details of the cleft varied considerably and ranged from mere unilateral cleft lip to complete cleft involving lip, alveolus, hard and soft palate and uvula. The specific pattern of the defect was always given careful consideration on assessing their articulatory performance.

Methodology

a. Empirical

The phonetic performance of the patient was tested in two situations; a) a linguistically artificial situation where he was asked to repeat the examiner's utterance of (i) individual isolated phonemes of his particular language thrice and systematically as per the chart order (Fig.i)[C] at the first sitting and randomly at subsequent sittings and (ii) words containing the defective phonemes in IMF positions and b) a linguistically natural situation, where he is required to (i) name the several pictures or objects shown and (ii) build a connected narration for a story chart. The second gives us a nearer sample of his habitual performance in real life; this reaction is taped, where needed, for a meticulous analysis in speech flow, of the

defects particularly of the nasality. The articulatory performance of each patient is recorded on a separate sheet and also taped, if needed. It was considered desirable to build the full report of each patients performance on a careful analysis of all such data

A general observation is; the patient is usually consistent in his pattern of errors more particularly at the level of repeating of the individual isolated phonemes than in running speech. Relating this pattern to the details of the anatomic defect closely is however not easy because of great variations in the habitual mannerisms as well as the details of the cleft itself, plus compensatory mannerisms specially if the patient is an adult.

b. Theoretical

The theoretical model for our linguistic approach is based on two related propositions; illustrations are mainly with English words and written in ordinary and not IPA spelling, but use Indian languages where needed.

1. To profitably study the phonetic data of any speech output, it is useful to regard it as but a concatenation of several specific phonemes characteristic of that language so that the kinematics we have to consider would be of just 2 categories; (i) that of the utterance of individual phonemes, isolatedly and (ii) that of the utterance of them in succession or concatenations wherein the connecutive phonemes are likely to undergo blends such as between a consonant (C) and a vowel (V) viz. C.V. for e.g. k.u. -- ku cook) and

a consonant and consonant C.C., which in turn will be of 2 types (i) C = C (Akka, in Tamil-sister), where the 2 consonants are similar, k.k. - kk or (ii) C.C. (acknowledge) where they are dissimilar as in K.A. -- kn. or k.r. -- kr (Crow).

The cleft palate is likely to have greater defect in C=C clusters.

2. To study the phonetic irregularities of a cleft palate advantageously, it is useful to have a complete chart.(Fig.2) of the phonemes of a language in our view picturing them.

i. in all the relevant details of their kinematics such as the crucial place and manner of the movement of the oral structures and

ii. more importantly as representing different sets of kinematic relatedness. The movement of the oral structures involved in the phonemes of a single such set will have a greater similarily as compared with that for the phenemes of a different set. For instance, the kinematics of all the vowels has a greater similarity among themselves than when compared with that of the consonants. The vowels and consonants are 2 different sets. Similarly the kinematics of /a/ has greater similarity with that of /ā/, than with that of /i/. Classifying the phonemes into various categories like this is very much available in the literature but requires greater attention, refinement and constant reference when we keep in view the problem of assessing articulatory defects of the cleft palate.

An empirical justification for the usefulness of this type of modelling may be pointed out; it has been observed in many cases, specially of complete cleft palate, that the patient is very likely to substitute the corresponding nasal phoneme for the basic member of our consonantal kinematic set viz. ng for k, ing for c, n for t, n for t, m for p etc. and not any other way.

Observations

By a close and comparative analysis of the data on the articulatory performance thus collected, many useful deductions can be made. A fuller paper of this nature is being prepared for publication elsewhere, we shall merely present some of our salient obserfations here. The total number of the phonemes to be tested in the Tamil patients compared to other Indian languages is very much less as we may fully exclude the middle 4 sets of the consonants of Fig.1, to test for all of these phonemes that do not exist in their language is not much to the point.

Some of the other interesting observations are; i) At the level of uttering isolated phonemes, nasality does not occur for the consonants or the semivowels. This is wholly a vowel phenomenon as in also well known and attestable in running speech, when we can easily see that it affects the vowel segments of the words mostly. 2) More importantly, the nasality does not even affect all the vowels, uniformly. The commonest affected is /i/ and/i/ accompanied sometimes but not always by /e/ and /e/ and rarely /ai and /au/, observe the kinematic nearness

of all of these sound (Fig.2) /a/ and /ā/ are rarely affected. It is very rare to find all the vowels namalised. Infact, the picture of the prepparative vowel performance is so consistent and individualised for each patient that one can grade his prognosis of recovering absence of nasality after operation, depending on this picture itself. If only /i/ and /ī/ are affected, nasality for them - at the level of individual phonemes, though not necessarily for running speech - is likely to disappear totally immediately after surgical repair. This will not be so, if /a/ and /ā/ and more so, if all the other vowels are also affected. 3) Quite often, even though we may not find outright nasality for individual vowels, the visible defect in their utterance specially for /ī/ and /ū/ can be easily rated by such terms as not so good in performance, anormal in quality, or difficulty in starting. In general, the errors of the vowel performance are; misarticulation or commission but never a substitution viz. an /a/ is never replaced by /ai/ etc.

Among the consonants, the nasals are mostly utterred without any difficulty, sometimes they are outright omitted specially /ing/and /m/, the latter, particularly in a cleft lip patient. Just like the vowels they are also never substituted by any other sound. /ing/ and /n/ is never substituted by /ṇ/, /m/ etc. It is thus the first of the consonant set of Fig.1 only(viz. k, c, t, t, p) that suffer from all the four possible errors; omission, substitution, misarticulation and approximation (e.g./k/ by a glotta stop). Quite often

as stated above, the first consonant of the set is substituted by its corresponding nasal as k - ng, c - ing t-n, t - n, p - m. However, a more common substitution is by a simple vowel /a/ or an aspirate /ha/. Among the semivowels /y/ and /v/ are the least affected /r/ being the most affected.

The advantage that accrues from our linguistic approach concerns both diagnosis as well as theraphy

For diagnosis, this helps (i) to appraise the phonetic errors as specially related to the structure of the language of the patient concerned and (ii) to bring out the full pattern of the speech disturbance of each patient, carefully and systematically. These two measures will help not only in exhausting the available data properly but also in enabling us to compare the performance of different patients on a common framework. An interesting value of carefully preparing such sheets for articularion ofevery phoneme of a patient is; it is often possible to make up words from among the phonemes the patient is able to utter without difficulty and ask him to utter a whole series of them. This simple device will often encourage the patient as well as his parents that he can really gain normal speech and would thus act as a real boost for encouragement willing by continuing their afforts.

For theraphy, this helps in (i) programming the treatment in a detailed personalised way (ii) preparing many types of word lists as per the phonetics of the patient's language and the different types of the

articulatory requirements of the cleft palate and (iii) taking advantage of the phonetic peculiarities that the language of the patient itself affords; instance a Tamil patient can be examined quickly as the phonemes required to be tested are few and secondly using a long vowel prior to a consonant or using the consonant in a conjoint manner (C=C type k.k.) in Tamil seems to aid in uttering the defective consonant after the surgical repair, more easily. With such premises one can foresee the need and utility of preparing several categories and graded series and words in our different languages with their consonants in the IMF positions and even taped lessons of them for home and self drills, specially if the patient is an adult.

Cleft palate is a condition where phonetic studies are very necessary but is usually neglected. For instance, instead of examining his ability to articulate the phonemes of his language rather randomly as at present it is useful to do so in an order of pregressive sequence. In Indian languages, this order follows a slight modification of the Paninian arrangement in which we traditionally learn them (Figs. 1 & 2). The disabilities can then be shown to follow a neat order; (i) the nasality due to velopharyngeal defiency mainly affects the vowers and not the consonants, (ii) even among the vowels, /a/ is very rarely nasal, the most frequent nasal vowel is /i/ and its 'derivatives' /ĩ/ and then /e/, /ẽ/ and /ai/ in this order of descending frequency (iii) the vowel /u/ and its 'derivatives' /ũ/ and then /o/,/õ/ and

/or/ are nasalised much less frequently, (iv) nasalisation gets restored following surgery only if /i/ alone is affected; if all the basic vowels /a/, /i/ and /u/ are affected, the chances of regaining non-nasality is remote, (v) whenever a substitution is affected to a basic consonant of a class, it is often likely to be done by the nasal phoneme of its group. /P/ is likely to be substituted by /m/ and so on, if however the substitution is not done by a simple vowel like /a/ or an aspirate like /ha/.

Discussion

If the need of the phonology of the language is so pertinent to cleft palate as to lead us to the fascinating idea of commercialising taped lessons of phonetic drills in several languages, the need and utility of the lessons of grammar and syntax of the languages of the patients to the more central disorders of cerebral palsy, delayed language etc. is much more; this however is a more complex issue. We therefore merely high-light the salient points. To help the mentally handicapped with communicative difficulty it is important to note that we now have sufficient technical expertise to develop what is being already referred to as language therapy and not merely speech therapy 13, 14. To appreciate this, we should note that the way the process of language is being evaluated nowadays is quite different from what it was in the past 2, 10. Modern linguistics considers its subject matter more as a biological process created during organic evolution than as just an artifact developed due to

more social conventions. In the analysis of the language material also, whether we consider it as presented to a speaker or produced by him, the discipline of structural linguistics has reached quite a sophisticated degree of fineness that must be understood and utilised.

How does a child demonstrate abnormal language behaviour and how do we develop techniques to observe and analyse it? Cerebral palay, brain damage, mental retardation and autism are four specific conditions where language difficulties occur in a child. The criteria of grouping abnormal language has so far been to call them auditory or visual modality dysfunctions viz. disturbances in speaking versus reading-writing dimensions. This is being given up now by adopting criteria based on the various dimensions of language behaviour This is to give greater attention to the syntactic or semantic characteristics of the language performance. We than come to the heart of the linguistic act and not merely beg ourselves down in some merely external manifestations of it.

Three definite forms of language problems can now be specifically listed. They are; the disorders of vocabulary, the disorders of sentance structure and meaning, the disorders in discourse and the disorders in pragmatics. In studying each one of these dimensions, considerable progress has been achieved abroad and analytical tests have also been developed. They need to be adopted to our conditions and our languages.

Only one of these dimensions is being illustrated in detail viz. the disorder of vocabulary which is the

simplest of the four-both in its recognisability and manageability. We now have definite techniques to measure this quantitatively. These are Peabody Picture Vocabulary Test and the Full Range Picture Vocabulary Test. An extremely valuable tool that can be applied to all communicatively disabled individuals including the mentally handicapped is; the development of Functional Communication Profile as first formulated by Taylor. This measures the patients ability in 45 separate linguistic skills needed for daily living which permits a score in a continue from 0 to 100 percent, grouped into tasks which make differential diagnosis among aphasia, apraxie, dysarthria and vocabulary, more useful clinically. The importance of utilising such Profiles and how we can go about developing our language versions of this cannot be over emphasised.

The amount of information about the child's knowledge of word meaning gained from these measures depends on the last item and the items that serve as foils viz. the items that are not correct. Only a few processing abilities have been identified as directly related to vocabulary usage. Of these, the best worked out is; the ability of word retrieval. In testing the capacity of word retrieval, focus is on the child's ability to search memory, find and produce the appropriate word. The Confrontation Naming Test exemplifies how we can obtain this measure. Picture stimulii are presented here one at a time to a child who then names it. The interval of time (latency) between presentation

offered and the response given is then taken. After this, all the items that the child could not name, are excluded and only those named correctly are presented again; the latency is once more recorded. The change is latency between the first and the second trial is usually evaluated as a meaningful and measurable parameter. Any increase in the latency between these trials is an indicator of a definite existence of word retrieval difficulties.

From research and clinical observation using measures like these, it has become clear that children with language disorders often have vocabulary deficits of some form. These children whose language disorders occur in association with mental retardation will almost always have a deficit in vocabulary. We should emphasise that the child's knowledge of word meaning will always be dependent upon the level of conceptual development. If a child has not developed the general concepts of events that can occur in the future, words such as "tomorrow" or "next month" will not at all have their adult meaning specification to him. Children with mental retardation typically show a slowed rate of conceptual development and this may be one reason for their difficulties with vocabulary development. We shall then have to attempt to stimulate conceptual abilities by offering them diversified sensory experience.

The Present Need

Many other examples of this nature can be given to emphasise the value of taking into consideration of

what is happening in the field of research in linguistics where we now regard language production and reception as definitive and studyable aspects of human physiology. Infact, the time is ripe to develop what can be called Medical Linguistics may, on the analogy of Medical Genetics.

It should be noted however that to develop such a new discipline more rigorously than has been done before and to a degree of sophistication and reliability that the clinical service demands, the attack has to range from theoretical, to technological and clinical levels. A normal speech clinic or even centres specially meant for speech rehabilitation rarely have an inclination to carry out the basic type of research that is required for such advances whose promise is very much salutary. The personnel are considerably and very rightly involved in rehabilitating the patients who come to their care. They are also overburdenned by the pressure of work and the intensity of their own routine clinical demands. That is why they are reluctant to pursue any promising line of activity which however can be expected to yield result only in the future. That is why a definite need for the hour is to encourage such basic research and more over to recognise if such centres of study already exist in our country and augment it fully.

To illustrate the spirit of approach and the technology at our service now available, it is relevant to quote Wepman.[13] "Therapy than requires the utmost

ingenuity, the maximum of innovation and the constant challenge of effecting change. It can never be routine, predetermined or automated. There are no successful orderly steps that apply to all or even to a majority of patients, no cook book approaches of merit". One example of a language therapy technique that has proved valuable was developed by Wepman himself by collecting a widely diverse library of film strips, educational and Vocational, ranging from new arithmetic to archeology. "When the patient is able, we allow him to select a film strip with a little that intrigues him. When he cannot, we select one for him. We ask the patient to view the strip at his own rate of speed, trying to talk in any way he can about what he sees, his speech efforts are recorded and the record played back to him while he views the strip for the second time; his errors are pointed out to him if he does not hear them. If the patient can read, the tapes are transcribed so that he can follow while viewing the film for a third time..... It is this type of nondirected theraphy that we believe to be maximally beneficial to the patient who, as he succeeds will or should be able to speak in any situation without the need for direct overt assistance".

What we should aim in diagnosing the disorder of speech and language is more to explore as to how much of it has remained. It is in as analytical and precise an appraisal that we can make in this regard, the degree of our success lies. For, we than have the full knowledge of the scratch from which we have to build. Linguistic analysis helps a clinician at this state.

Acknowledgement

The author is deeply indebted to Dr.M.N. Ghosh, Director, Jawaharlal Institute of Postgraduate Medical Education and Research, Pondicherry for his generesity. He is grateful to Dr.Satyaprakash, Professor of Surgery and Dean of the Institute for so kindly referring the cases represented here for study.

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Fig. I PHONEME CHART

The phonemic sounds are indicated in ordinary English alphabets with simple well known discritical marks and not the International Phonetic Alphabet (IPA) as the latter is generally not familiar to the clinicians to whom this paper is particularly meant.

The vowels:

1. The simplest basic vowels:	a(up)	i(it) u(put)
2. The "corresponding long vowels:	$\bar{a}$(car)	$\bar{i}$(keen) $\bar{u}$(pool)
3. The second set of the short vowels are: (found in Kannada only and neither Sanskrit or Hindi)	e(pen)	o(one)
4. The "corresponding" long vowels:	$\bar{e}$(gate)	$\bar{o}$(ode)
5. The diphthongs:	ai(kite)	ou(hound)

The consonants:

a. The classifiable consonants:

1. K-class	k(kit)	kh(khan)*	g(gut)	gh(ghastly)	ng
2. C-class	c(china)	ch(chance)	j(jug)	jh(Jhansi)*	ing
3. T-class	t(tin)	th(kathi)*	d(dig)	dh(dhol)*	n(chana)
4. T-class	t(tapas)	th(thorn)	d(dan)	dh(dharma)	n(nut)
5. P-class	p(pup)	ph(phal)(x)	b(bun)	bh(bhang)	m(mum)

b. The unclassifiable consonants:

y(yarn) r(run) l(land) v(van) sh(shut)
sh(shagrin) s(sun) h(hut)

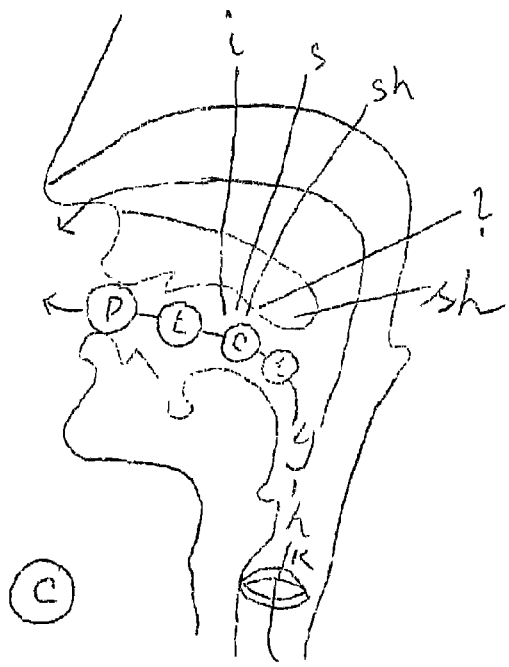
The words with asterisks are from Hindi:Khan (a Muslim name), Jhansi (name of a town), Kathi (stack), dhol (a drum), chana (a pulse), tapas (penance), dan (gifts), dharma (righteousness), phal (fruit), bhang (an intoxicant).

Taken from Electrophonograph and Speech by Krishnamurthy K.H. (Indian J Med Res 72, July, 1980, pp 144).

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KINEMATICS		PLACE OF ARTICULATION				
		GOTT.	ANT. PAL.	POST PAL	DENT	BILAB
	GENERATION	K	c	t	t	p
	ASPIRATION	kh	ch	th	th	ph
	SOFTENING	g	j	d	d	b
	ASPIRATION	gh	jh	dh	dh	bh
	NASALISATION	ng	ing	n	n	m

(A) C_1



(B) C_2

* NO SPECIFIC PLACE

** ANTERIOR BUCCAL CAVITY

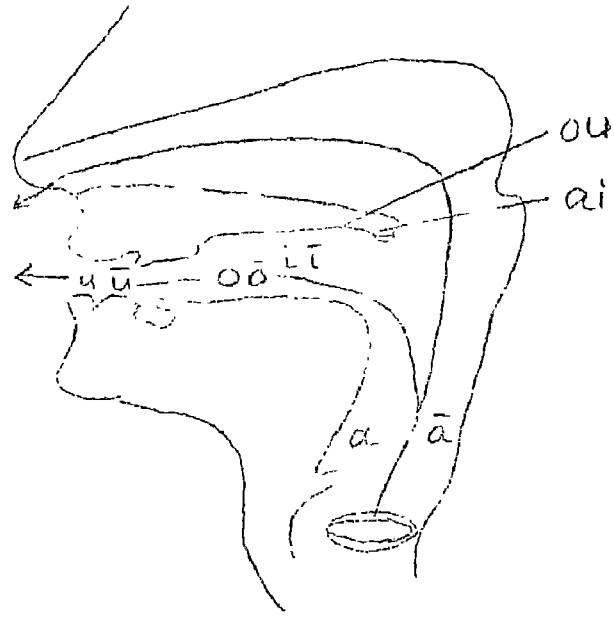
FIG. 3

KINEMATICS		PLACE OF ARTICULATION						
		ALL OVER *	ANT. **	ANT PAL.	ORAL LAB.	ASPI. (PAL.)	ANT. (PAL.)	POST. PAL.
	GENERATION SOFTENING	yh	r	l	v	sh		
							s	sh
								l

'4-CONSONANT KINEMATICS (A)-C_1, (B)-C_2 'RELATION'
(C) PLACEMENT (BOTH APPROXIMATE)

KINEMATICS		PLACE OF ARTICULATION				
		POST	PO.MEDIAN	MEDIAN	PRE.ANT.	ANTERIOR
	GENERATION	ɑ		i e		u o
	LENGTHEN-ING	ā		ī ē		ū ō
	GLID		ɑi		ou	

(A)



(B)

FIG. 2 THE VOWEL KINEMATICS
(A) 'RELATION' (B) PLACEMENT
(BOTH APPROXIMATE)

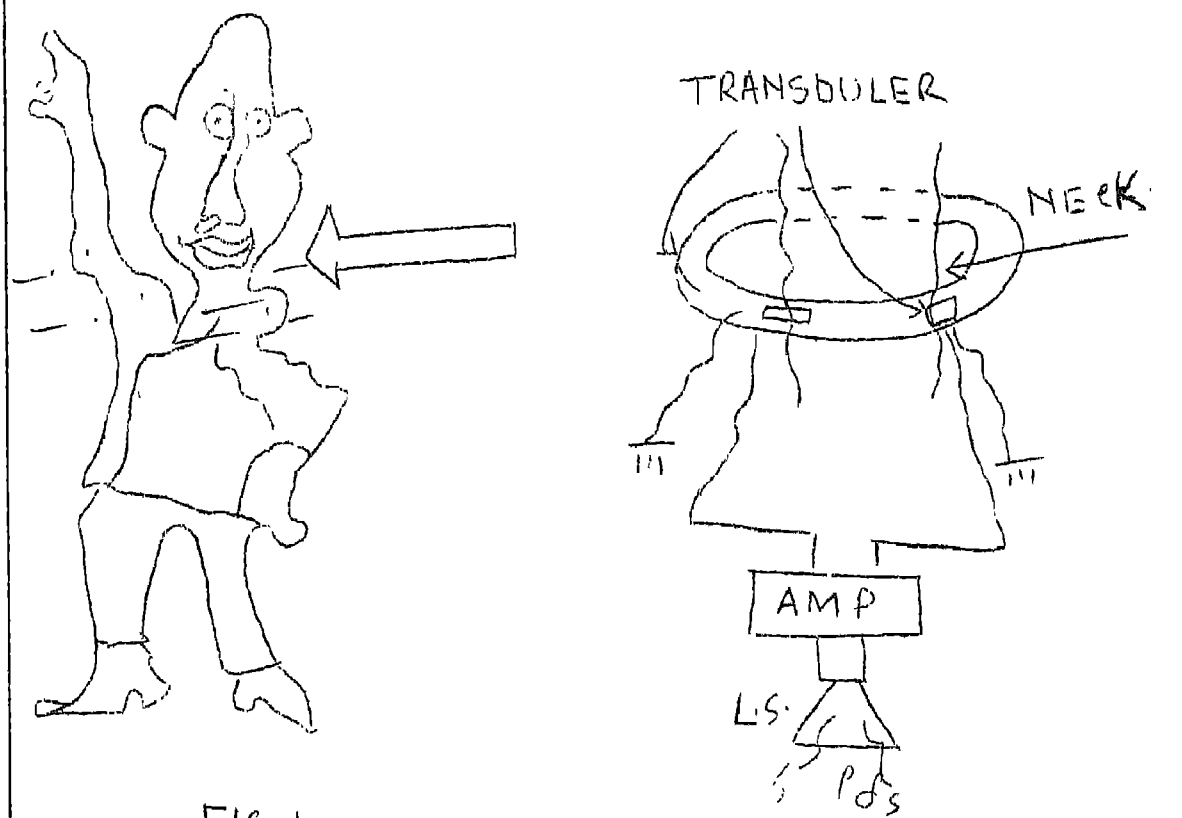


FIG 1. VIBRATION TO AUDIO SIGNAL

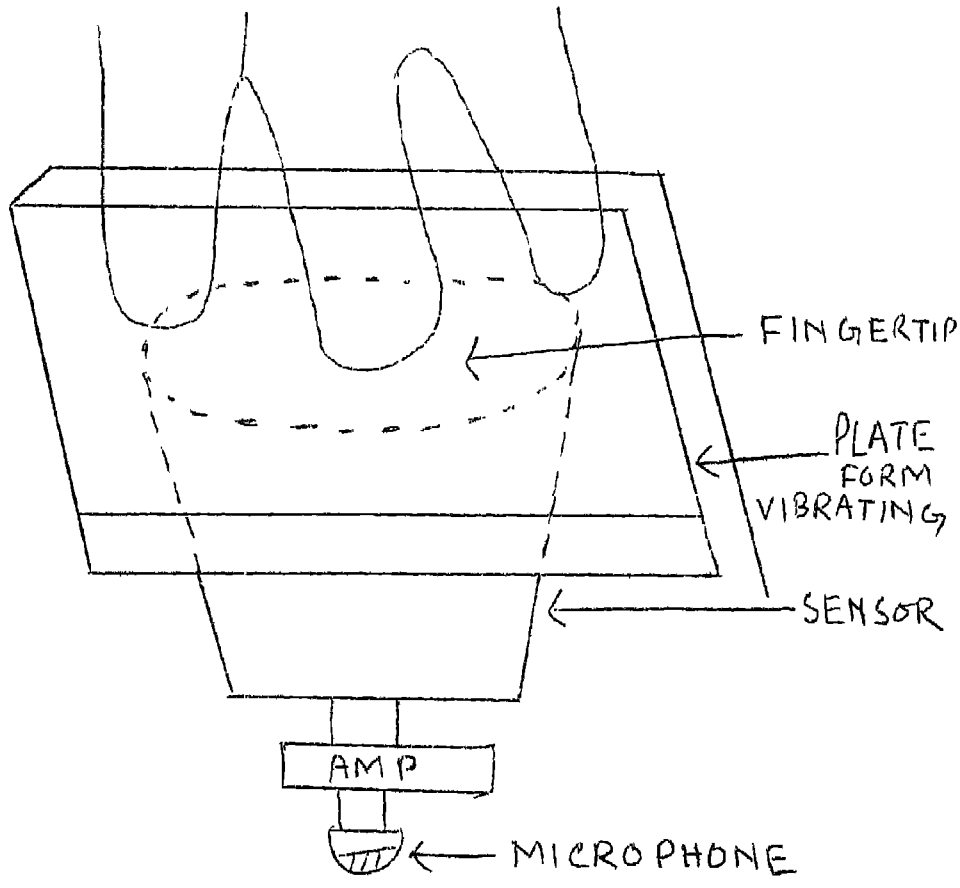


FIG 2. AUDIO TO VIBRATION

3.4.0 PROBLEMS POSED BY HEARING IMPAIRMENT

by

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Abstract

This educational methodology is adapated from the Montessori method of educating young children. Lessons are based on a child's actual experiences. These experiences are talked about in simple, clear sentences as the action takes place. Consciously, each object and each action is named; this is to overcome the lack of word pictures that exist in the hearing impaired child's mind.

The oral pattern is buttressed by written pattern, to give the child a clearer picture. The teacher talks in a natural tone without any over-emphasis. The sentences are simple, complete and grammatically correct.

The ideal age to start learning is from the age of one.

The child uses a good hearing aid, which amplifies the sounds. No hearing impairment is 100%. Every hearing impaired child has residual hearing to a certain degree and aided by the hearing aid, the child hears sounds. With proper auditory training, the child comes to realise that sounds have meaning. In the beginning, the child assimilates words, comprehending their meaning. Slowly, the child ventures to use these words in meaningful situations. This is the beginning of language. This is developed over months by oral means, by reading, by writing.

Oral communication is considered to be firmly set when a hearing impaired child understands a question and meaningfully answers it.

Introduction

Oral education for the young hearing impaired child is the true education a teacher can offer.

Language and speech are the two areas which make a human being specifically different from the other animals. The human brain has precise areas for speech which do not exist in animals at all. However, intact is this part of the brain in a human baby, still the child cannot speak unless it learns a language. Genetic memory does not play any part as far as language development goes.

The human baby has immense capacity to learn a language between the ages of zero to five. As the child grows older, this capacity gets atrophied and it has been proved that a child left without learning a language untill the age of thirteen will almost never be able to learn a language for the rest of his life.

The human brain is not a computer that follows routines laid down at birth. The brain of a new born infant has enormous capacity to learn. It registers hundreds of impulses each day of its life and these prepare the child for future actions.

The day the hearing impaired child is born, he is not in any way less capable of learning than a normal hearing infant; excepting his sense of hearing, the others senses are stimulated by the actions that take

place around him. He embarks on comprehending the world around but due to his hearing impairment the things and actions he visualises and perceives are not named for him. His hearing impairment puts him into a very tough situation. As he does not hear the sounds around him clearly, he is deprived of the security that peoples' voices may give him even when he is not next to his mother. He cries like his hearing peers, when he is in need, but completely misses the clues given by sounds. The soothing words of the mother, the tingling of his feeding bottle etc. are not heard by the child and he becomes an outsider in his own family.

Even though the hearing child starts talking only by his 12th or 15th month, the child would have heard hundreds of sentence structures in meaningful situations. The child has been in the process of assimilating the language he has heard and had been waiting for the signal from his brain to start uttering these heard patterns. As the hearing impaired child has not heard anything at all so far there is absolutely no word-picture in his mind which can set him in the path of speaking.

He may have perceived a number of incidents that had happened earlier but as no words or sentences about ther were heard by him, there is no fund of language in his brain which alone can set him in the path of oral communication. His auditory memory had been nil making his language development a blank frame into which nothing

has been woven. His hearing impairment deprives him of the human commitment to "Speak and understand speech".

The tragedy of deafness is not that the child does not speak but the child has nothing to say.

II. Pre-Requisites for a hearing impaired child to develop his full potential.

There are many factors that influence the character and personality of a hearing impaired child. A few of them are crucial for the total development of the child.

Early training is the foremost pre-requisite. The earlier the training is started, the better are the results. More than 60% of what an adult of thirty years knows is based on the infrastructure that he had built before he was five years old. The important basic concepts are all learnt by a human child even by the time he is three years old. His brain is most receptive at this young age and the best period for language development in the child is found to be made to utilise this important learning period. Formal training can be started from the age of 9 to 10 months onwards when the child will be able to sit-up.

A continuous auditory training is the backbone of the training. Auditory training is not just a part of the training imparted to the hearing impaired child, but it is the pedestal on which the whole education of the hearing impaired stands. Language development, speech, clarity and comprehension can progress to the child's maximum capacity only when constant effort is done by the school as well as home, to exploit the residual hearing left in the hearing impaired chil .

It has been proved that only one child in a million will have a total hearing loss not to be able to make use of a hearing aid; every other child is left with some residual hearing. The hearing loss in these children ranges from 30 db to 120 db, grouping them into three distinct groups - children with mild loss, moderate loss and severe loss.

In children this residual hearing atrophies very fast. A child with a severe hearing loss may end up as a child who has only a moderate or mild loss if the child gets proper early training. A child who might have had only a moderate or mild loss at the age of two, if left untrained upto the age of five or six, will react and behave as a child with severe loss.

The child's intelligence and attitude also plays a very important role. The hearing impaired children are not specially bestowed with artistic talents or prominent observational skills as may be imagined by many. The hearing impaired children are exactly alike ordinary children in that a major portion of them have normal intelligence. A few of them have intelligence above the average and a few other fall in the group of children with intelligence below the average.

Hearing children who are near or slightly below the lower border of intelligence do not suffer any great damage. Though these children do not shine academically and otherwise, still they lead a normal life. But a hearing

impaired child with intelligence below the average level, finds it very tough. Similarly, the slow learners, shocked babies and damaged children who also have a hearing impairment do not develop language easily.

Parent Guidance forms a very important aspect of the teaching programme. The whole language scheme is spun around the actual experiences of the young hearing impaired child. It is imperative that the parents with whom the young child is emotionally attached also take an active role in supplementing the school's effort in providing the child, then and there, with the appropriate language patterns. As the parents are amateurs and also desolate, the school guides them properly, thus making the education of the young hearing impaired child a meaningful expedition.

Thus a hearing impaired child, with normal intelligence, can develop his full potential if the training is started early. Backed by good auditory training and home support he blossoms into a well-balanced personality equal to his normal peers.

III. Educational Methodology For Hearing Impaired Children

Introduction

This methodology is based on Montessori methods used in teaching normal young children, with necessary adaptations needed to combat the hearing impairment in the student. The basic principle is harnessing all the

sensory perceptions of the young child to give him an integrated knowledge of the world around him.

The children are helped to play, experience, observe and learn. As the children are very young, care is taken to engage them in constructive games. The materials used are simple - building blocks, puzzles, marbles and toys that create situations to talk about. An informal, friendly atmosphere is maintained in the classroom. For example, the teacher and students play noisy games, as a dog and puppies, as trains etc.,.

The children are carefully guided to use those constructive games, imbibing ideas of colours, shapes etc.,. These children are fitted with hearing aids that fit them properly. The teacher talks to the children all the time. The child is encouraged to "listen" from the very first day of his training. Thus slowly the child becomes aware of the sounds. The names of the toys he plays with are introduced next; he is made aware that each one of them has a name; the people who move closely with the child, the things he uses in his daily life etc. are named one by one. A pictorial record of these is also maintained for recapitulation.

In the beginning, the child is bewildered, but soon begins to learn. In this stage of assimilation, he learns to look at peoples' faces whenever any one talks, he tries to lipread as well as listen and tries to comprehend what the person is saying; eventually the child is able to associate words and objects. This is

the first step the child takes towards language. Gradually he is able to comprehend small oral commands like "Open the door", "Fetch me a pencil" etc.,. The child is also encouraged to vocalise.

Stage I

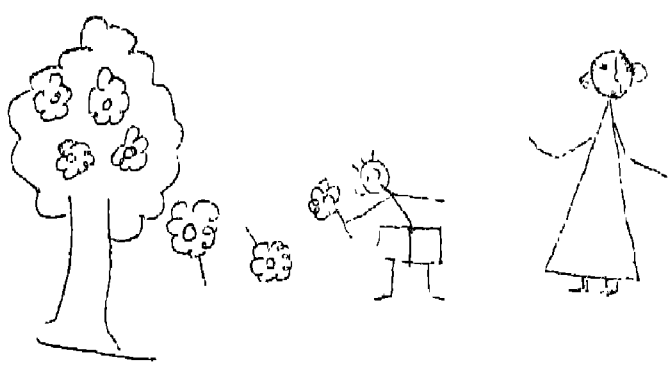
Formal lessons are started once the child is familiar with a considerable amount of names of things around him.

In this project method, the child undergoes an experience under the supervision of the teacher who explains the activity as it proceeds, thus providing necessary words for the actual experience.

ACTIVITY

Example

The child is taken in the garden. He is shown a tree full of flowers. He is shown the flowers that have dropped on the ground. He is asked to pick a flower. The lesson for the day is :



Ram picked a flower.

The teacher reads the lesson with the child. The whole activity is recapitulated in detail. The child is encouraged to read the lesson. Simple questions like "Who picked a flower?" "What did you pick?" are asked. The child has to be helped in the beginning to understand the whole idea of question and answer. Thus foundation is laid for logical thinking and conversation.

Auditory training is given from this stage onwards. The child is encouraged to listen only through the hearing aid (not look at the speaker's face) and answer questions, point to particular words in a sentence.

Each day's lesson is based on a fresh experience of that day. Full sentences are presented from the beginning. A written pattern is also presented to supplement the auditory pattern. The hearing impairment necessitates repetition. Simple sentence structure are adhered to in this stage. Assimilating the correct sentence structure is a very difficult step for the child. The child's residual hearing is explcited to the maximum, he is encouraged to listen consistantly.

Thus at every turn, an auditory and visual pattern is presented about an actual experience of the child. So the child learns to translate experiences into words and concepts. Gradually the lessons grow upto five or six sentences.

Stage II

Now the child can easily say simple sentences of his own. His lessons are still based on his experiences. But more is expected of him orally. He is able to answer in simple sentences questions pertaining to the activity, even if those actual sentences do not find a place in the lesson. The child is able to narrate an experience in two or three simple sentences.

Now his lessons are written in a different pattern. Now the aim is to develop on idea of acquence, an idea of cause and effect. The lesson is written on strips of paper, each containing one sentence. The sentences are put in the right sequence and read by the teacher. Then the strips are jumbled up. The child puts them in the correct sequence and reads them.

Example :

Ram went in the garden

Ram saw some flowers



The flowers were on the ground

Ram picked a flower



Ram smelled the flower

The flower had a nice smell

Apart from this regular lesson, picture books and charts are used as talking points. The child is absorbing a rich fund of information. Basic concepts of Biology, Zoology, History, Geography etc., are imbibed by the child. The child is beginning to collect and assimilate information beyond his actual experience; stories and songs stimulate his power of imagination.

Stage III

Now the lessons are packed with more information, the actual experience being only a starting point. Reading and writing are actively encouraged. The child is expected to form questions of his own. He makes use of his over-widening vocabulary in his daily conversation.

His general knowledge and his reading level are above that of his hearing peers. He holds a conversation easily on any pertinent topic, fully utilising his residual hearing. The child can write an essay of 10 to 15 sentences on an event he has witnessed without his teacher's help.

Now the child is ready to leave the sheltered atmosphere of the special school and be placed in a suitable class in an ordinary school.

Stage IV

This is the final stage where there is a close follow up over the child that is placed in an ordinary school. In the first year, the child comes in the afternoons to the special school, where he is given auditory training and continuing training in speech and reading. Academically, the child needs no special help; in fact he is ahead of his hearing peers. This advantageous margin is kept up by extra reading. Slowly this follow-up is lessened in the next two or three years as the supplementary help of the special school to the hearing impaired child is not essential any more.

CASE HISTORY

Case histories of three hearing impaired children are presented here.

Case A is a child with no extra problems other than her hearing impairment. She was able to leave the special school after a period of three years.

Case B is a child with a very heavy hearing loss who would not have developed any language skills even if one more factor had gone against her. She was able to leave the special school after a period of five years.

Case C is a child with behavioural problems. He shows all symptoms of being a rubella baby. This child needed four years to become a willing worker, to learn to give his best. Then he left the special school. Still, behaviour problems persist though less frequent and less serious.

CASE A

Hearing impairment in the child was suggested by the mother even at the age of one year. The child started using a hearing aid from the age of eighteen months with the help of correspondence lessons to parents of young deaf children from John Tracy Clinic U.S.A. and the mother tried to teach the child at home.

The child was admitted to the special school at the age of two years and eight months. By then she had accepted the hearing aid and was using it almost right through her waking hours. Her language development and vocabulary were nil at the time of admission into the school. Her audiogram showed the hearing threshholds around 50 db.

The child is the and child with an elder sister.

The child was found to have intelligence above average.

When the child joined the school she was wrorried, aloof and shy. She did not accept the other children easily; during the first six months at school, she did not cooperate with the teachers.

After six to seven months there was a sudden change in her. She showed keen interest in her lessons at school; she tried hard to please her teachers; she was slightly better with other children in the school.

At the end of the first academic year, the child was already talking in phrases and very small sentences. She enjoyed using the new tool she had acquired. By now

she was much relaxed at school. The mother told us that at home the child was happy and cooperative but still avoided all visitors and strangers at home.

The next academic year proved a fruitful one. The child showed specific interest in learning new words, phrases and sentence structures. She used them orally at every meaningful opportunity. Her reading also improved tremendously.

While she showed steady improvement academically, she was already conscious of her hearing impairment; She was upset about the hearing aid. There at school and the home guided her gently and help her understand that her hearing aid will have to be her constant compenion; in a year's time her attitude improved and she slowly started accepting her handicap.

During the third academic year the child made tremedous progress. Her language and speech developed with great speed; her reading and general knowledge was already beyond her age. She was healthily sensitive to criticism and tried hard to do her best in fact, made genuine effort to improve herself.

Considering all these assets, the school decided to send the child to an ordinary school part of the time. She was then six years old. She joined in the Ist standard of a regular school. The other children in her class were of her own age. She went to her new school in the mornings and came to the special school in the afternoons for training in language skills.

The academic work load at her new school was very light considering this child's attainment. She easily got integrated in her new school. She went to it happily.

The whole of the next academic year the child came to the special school one afternoon a week. She coped well at school; she had developed good reading habits and her reading age was well ahead of her chronological age.

Then the father got transferred to another city, so the child had to change to a new school. She was soon well adjusted there also. The child's language, speech and temperament progressed steadily and was confident and composed.

CASE B

Hearing impariment in the child was suspected by the parents when the child was 12 months old. A hearing aid was used off and on since then. Regular training at school was started when the child was 22 months old. The child's audiogram then indicated a hearing loss of about 120 db.

The child was adjudged a very intelligent child by the child psychologist and the I.Q. was estimated at around 110.

Third child at home with a boy and a girl older to her. At admission the child was found to be very reserved, worried and too mature for her age.

The child was put in a class of 3 children; the other two children had moderate hearing loss. The child was treated the same way the other children were treated.

In three months time the child got used to her classmates; she appeared happy. She gesticulated a lot. Which she was discouraged from doing and was guided by being provided with necessary words and sentences. A small concession was given to the child. The teachers talked only about things that happened around her and not about previous incidents or future happenings.

The child's comprehension improved but she was absolutely silent. More time was spent with her, by teachers, playing noisy games, using toys that made noises of different frequencies. Every attempt was made to stimulate her hearing.

At the end of the Ist academic year the child was able to comprehend simple sentences orally. The child was not silent any more. She ventured a few sentences of her own. But her speech contained only a very vague vowel pattern.

The parents were alerted not to make exaggerated lip movements. More time was spent by teachers inplay, encouraging the child to vocalise more and more. Care was taken by the teachers to keep their speech in simple sentences. The child remained aloof; she did not mix with the other children at all.

At the end of the second academic year the child showed a steady improvement regarding comprehension but her speech pattern remained very poor. Effort was made to sustain the vowel patterns in her speech. Academically the child was progressing. She was able to understand abstract

ideas by now. She was not discouraged even when she produced uncontrolled vocal patterns. She was still encouraged with noisy toys and games.

In the third Academic year the child made considerable improvement. She revealed an excellent memory for written forms. She improved temendously in auditory exercises. Her behaviour also improved. She became friendly with all the children at school. She was very confident and accepted her teachers. At the end of the 4th Academic year the child was found to have progressed in all aspects. Her language was good; she was able to talk fluently on any subject in keeping with her age. Her voice was natural but consisted mostly of vowels. Her reading was good, infact much above her age.

The child questioned everything; she was eager to learn new ideas and concepts. She questioned every idea and would not get convinced easily.

At the end of the 5th Academic year the child had very good language with well set grammer and a good vocabulary. Her reading steadily improved and was able to listen with full attention. Her self confidence continued to be good.

In the beginning of the 6th Academic year, the child was sent to an ordinary school for half-a-day. She joined in Ist standard of a regular school. The other children in her class were younger to her by one or two years.

The child came to the special school every afternoon.

The child showed an all round deterioration for the first few months, she became quiet and slightly worried. But slowly and steadily she got over this set back. By the end of the academic year she was almost completely relaxed; she had made a few friends at her new school; she was regaining confidence. Her academic pefformance at the regula school was quite good.

For the next two academic years the child attended the special school one morning in a week; the child showed a steady progress all-round. Her academic performance in her regular school had improved. She stood first in her class in all subjects. She was at ease in her class. The special school decided that a regular follow up by them was not necessary hereafter.

Though her speech is still not clear in that it does not contain many consonants; but her speech has good rhythm and intonation. Her voice quality is natural and good. She is able to manage on her own at school, in places like libraries, shops, friend's houses etc.,. Her temperament is pleasant, she has taken her handicap in the right spirit.

CASE C

The defect was noticed in the child when the child was around 12 months old. The child was fitted with a hearing aid. Hearing loss was found to be around 70 db.

The child was a premature baby. His general health was not good. He was underweight. His food habits were very poor. But child was found to be quite intelligent.

The child joined the special school at the age of 24 months. Though he had been using a hearing aid almost throughout his waking hours, he had not developed any language skills.

At the special school he was friendly with his teachers. He showed interest in learning; he picked up fast and worked hard. At the end of the first academic year, the child was already talking in phrases.

The second academic year at school was smooth. His language skills improved steadily.

But his temperament was not amicable. He did not make friends with the other children at school. He was not sensitive to praise or punishment and did not make any special effort to please his teachers.

The school found it tough to handle him during the third academic year. He was indifferent to everyone but still was doing well academically.

The fourth academic year at school proved a big challenge to the teachers. It was more and more difficult to get the best out of the child. But when the child was in a good mood on a particular day, all went smooth.

At the end of the fourth academic year, it was felt by the school that the child's language development and skills in speech were good enough not to need any further help. But his behaviour was still unpredictable. As an experiment, the school sent him to an ordinary school.

He went into a class of thirty hearing children of his own age. His language, reading and general knowledge, of course, were much above his classmates.

The child reacted tremendously well. He took up this new challenge with great enthusiasm. He tried to impress his new teachers and friends.

He came to the special school on all afternoons for one year, two afternoons for the next year and once a month thereafter. No special problem was noticed in him.

Now his reading is good. He is doing well at school and is confidentially moving around outside. Still there are days when he suddenly goes off his moods. These occasions are getting less frequent.

CASE	AGE AT WHICH TRAINING WAS STARTED	PARENT RESPONSE	DURATION	COMMENTS
A	5+	Good	2 years	Mild hearing loss - Helping factor
*B	2+	Excellent	3 years	-
C	4+	Excellent	3 years	Temperament - Helping factor
D	2+	Good	3 years	-
E	5+	Excellent	3 years	Excellent Temperament - helping factor
F	4+	Good	3 years	Mild loss - helping factor
G	3+	Fair	3 years	-
H	3+	Good	3 years	-
I	4+	Excellent	3 years	Temperament - helping factor
J	3+	Good	4 years	-
K	3+	Fair	4 years	-
L	4+	Excellent	4 years	-
*M	2+	Excellent	4 years	Temperamental inadequacy - delayed the progress.
*N	1+	Good	5 years	Severe hearing loss - delayed the progress.
O	2+	Fair	5 years+above	-
P	3+	Fair	5 years+above	-
Q	3+	Poor	5 years+above	-
R	2+	Poor	5 years+above	-
S	4+	Fair	5 years+above	-
T	2+	Negative	5 years+above	-
U	2+	Negative	5 years+above	-
V	3+	Poor	5 years+above	-
W	2+	Negative	5 years+above	-
X	4+	Fair	5 years+above	-

*Children mentioned in the case study.

3.5.0 - VIBRATOR TRAINING: AN APPROACH TO MODIFY THE SPEECH SKILLS OF PROFOUNDLY DEAF CHILDREN.

B
Y

D. VASANTA.

A B S T R A C T

A single nine year old profoundly deaf subject was trained to identify a number of speech cues using a single channel vibrotactile transducer. Amplified low pass filter speech was conveyed to the palms and fingures of the subject. Speech reading was not permitted. Correct responses were reinforced on a fixed ratio schedule of FR 7. Verbal stimulus "wrong" followed incorrect responses. At the end of sixty half an hour sessions, the subject could identify the number of syllables, syllable length (long vs. short) stress or emphasis on syllables and certain intonation patterns of sentences. She could also distinguish bilabial plasives from non-plassives and recognize them in words even in an open set recognition task. Results were found to be consistent with those of some recent research in vibratory perception of speech. They seem to suggest that wearable vibrotactile aids may help profoundly deaf individuals perceive time-intensity aspects of speech better than hearing aids currently available in market. There is an urgent need for further research in this area. A tentative program of vibratory training has been outlined for profoundly deaf chilfren whose native language is Telugu.

INTRODUCTION:

In the battle of commonly used methods of rehabilitation of deaf individuals, vibratory training did not find a prominant place. Despite the fact that profoundly deaf individuals, whose hearing loss exceeds 95 decibles in the speech frequency range benefit very little from auditory training, educators continued to use hearing aids. Over the years, speech reading finger spelling and sign language have been the most widely used methods in the rehabilitation programms. As long ago as 1951 Bekesy pointed out the similarities between the skin and the ear. The first single channel vibrator was built in the 20's by Gault. The later modified version of the same device was named Teletactor (Gault 1928). T day, computer models are available into which are built as many as one hundred and forty four tiny vibrators (Sherrick, 1975). The technological progress is great indeed! But none of these aids can yet be considered practical for use in the class rooms. A number of questions related to design options, stimulus variables instructional strategies, methods of evaluation of progress etc., remain unanswered or perhaps unsatisfactorily answered. After making an extensive review of research in tactile speech perception, Kirman (1973) commented that neither the contemporary theories of speech perception nor the results of previous work on tactile displays of speech offer reasonable grounds to believe that skin lacks the capacity to comprehend speech altogether. The passimistic remarks of certain researchers regarding skins

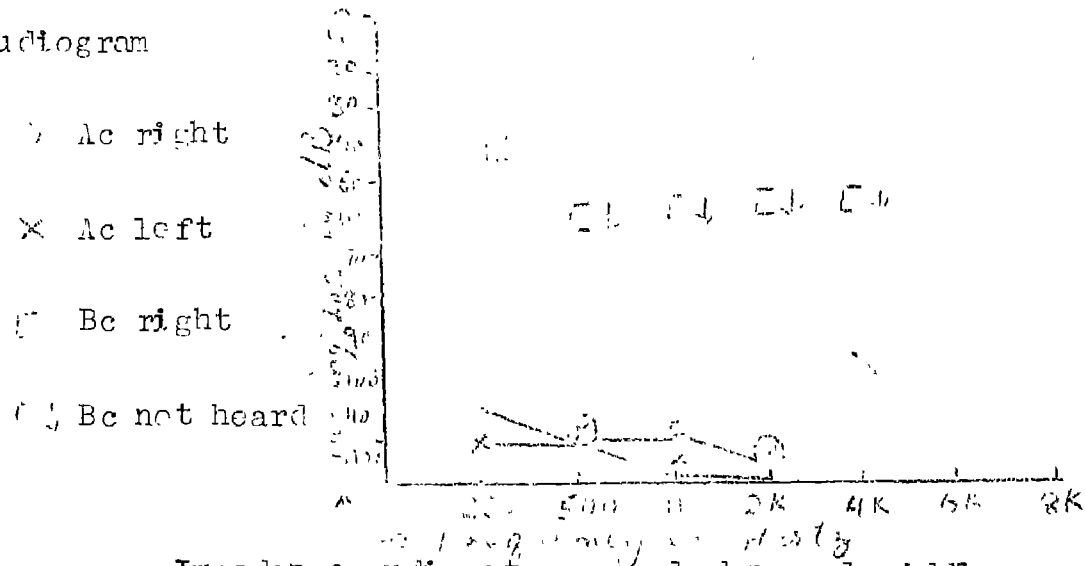
capabilities only reflect the growth in sobriety with which tactile communication of speech is being viewed, contends Kirman (1973). He says that skin has a natural capacity to detect patterns which are shifted over its surface. If factors like stimulus configuration and tactile memory are given due consideration in planning the experiments, vibratory training may yield promising results.

In the recent years, Audiologists and educators of deaf are increasingly becoming aware of the fact that a group of deaf children, often referred to as profoundly deaf, do not actually hear the amplified speech but perceive it through the vibrotactile receptors in their external and middle ears. (Erber, 1974) Not only do puretone thresholds exceed 95 decibels in the speech frequency range, the SRL sensitivity of their ears and the vibratory thresholds from their skin resemble, with a maximum sensitivity between 250 and 500 Hzs. (Verillo, 1962). Risberg (1974) demonstrated, empirically, that the frequency discrimination ability of this group of children is very poor compared to other groups and normals. In speech detection experiments, they perceive only time-intensity aspects of speech, which is again a characteristic of vibratory perception (Erber, 1972). It is this group of deaf children, who may benefit most by vibratory training. The present study describes the variety of speech cues that were available to the skin of a nine year old profoundly deaf child. Based on the preliminary results of this study conducted at the Department of

Linguistics, Osmania University, Hyderabad a tentative program of vibratory training has been outlined for was with profoundly deaf children, whose native language is Telugu.

M E T H O D.

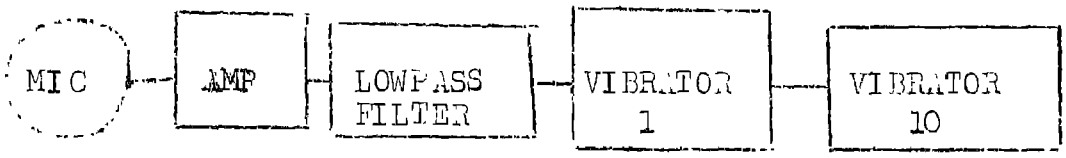
Subjects: A nine year old congenitally deaf female child served as subject in this study. Her problem has been diagnosed as bilateral profound sensori-neural hearing loss and dehayed speech and language. Her low frequency average threshold for puretones was 112 db in the right ear and 116 db in the left ear (Fig.1)



Impedance audiometry revealed normal middle ear function. In speech detection tasks on 27 channel selective auditory filter amplifier (product of Institute of Experimental Phonetics and Speech Pathology, Belgrade, 1955) her performance was very poor. Even when the output was 120 db, she could perceive only certain backvowels like 'u' and 'o'. Her lip reading ability, was very good compared to other groups of deaf children. Prior to starting this experiment, she has had three years of speech language therapy.

Instrumentation:

Fig. 2 displays the block diagram of the apparatus used in this study.



This unit, consisting of an unidirectional microphone, an amplifier, a low pass filter which cuts off all frequencies above 500 HZs and a set of ten vibrator boxes was built at the Institute of Experimental. Phonetics and Speech Pathology, Belgrade, Yugoslavia. It has been used extensively by Kostic and associates since 1955.

Stimuli: The words, phrases and sentences used in the present study were mainly derived from the conversational speech and were tested for familiarity. Those stimuli which elicited correct and spontaneous responses from the subject were retained and the others were excluded. There were six monosyllabic words like "ra" (come) "po" (gp) etc., about fifty disyllabic words some with trochaic stress (eg. "nadi"-(river) and the others were spondees ("akka"-(sister) or "aku"-(loaf)). The fifty trisyllabic words belonged to three different categories Viz., CV CV CV type ("parupu"-(mattress); CV CCV CV type ("pittalu"-(birds) CV CV CV type ("kakulu"-(Crows). There were four different types of tetrasyllabic words and very few polysyllabic words. The phrases and

sentences were either statements carrying neutral or angry mood and request type questions.

Experimental Procedure.

The testing took place in a reasonably quiet room. The subject sat in front of a table containing vibrator boxes at a distance of about 2 ft. from the experimenter. The placed the palm and fingers of one hand on one vibrator and those of the other hand on the second box. She was asked to move the fingres constantly. Stimulii were read by a native speaker of Telugu. An inter-stimulus interval of 4 seconds separated two successive stimuli. According to Bekesy (1959), the time required for a tactile stimulus to produce its full subjective sensation is greater than a second. Similarly, longer time is required for a tactile sensatin to disappear completely after it was switched off. The 4 seconds interval wasthought to be a compromise between relative slowness of skin in temporal resolution and the limited tactile memory. After the task was explained to the subject giving examples, the experimenter presented the stimuli in the absence of visual cues. The verbal/non-verbal responses given by the child were immediately noted on a data sheet, designed for this purpose. There were four main tasks.

1. Recognition of number of syllables and syllable length
2. Recognition of stress or emphasis on syllables
3. Recognition of intonation patterns
4. Recognition of bilabial plosives.

For recognition of 'number of syllables' task, after the stimulus word was presented, the subject was asked to indicate the number of syllables she perceived by raising correct number of fingers. In recognition of length of syllables, she had to give non-verbal written response; "-" for long syllable and "." for a short syllable. Thus the word "nadi" was represented as ".." and "Gali" as "-." by the subject. Several hours of practice (without vibrator) preceeded the experiment. Stimulus word was repeated at the request of the subject, occasionally. She was given an immediate feed-back of the correctness of her response. This was done to maintain her attention level as high as possible. Response was modelled when the child failed to give correct response. After 2-3 trials test procedure contined. A random sample of her responses are displayed in the matrix cells below:

Figure.3 Sample responses of the subject in recognition of number of syllables task.

Stimulus	1	2		3			4		
		2	3	2	3	4	2	3	4
1	"ra" (come)								
2		"nakka" (fox) "caku" (knife)		"alalu" (waves)					
3			"mida?" (Is it yours?)		"pittalu" (bird)			"erraṅgu" (red colour)	
4						"kavala?" (do you want?)			"kallajoḍu" (spectacles)

Kanaka 1981

The response is matrix cells are to be interpreted as follows; In cell-1, the mono-syllabic word is "ra". It was erceived as single syllable vibrotactually also. In cell-2, Col.2, the di-syllabic word is "nakka" (fox) which was perceived as 2 distinct syllables; but in the word "mida?", another disyllabic unit was perceived as trisyllabic unit. Similarly, trisyllabic word "alalu" in cell 3 was felt as disyllabic and tetrasyllabic unit "erra rangu" (Cell 4) as trisyllabic word and so on. There was some confusion in reporting the length of syllables, especially the tetra and ploysyllabic words which will be discussed, later. In addition to these identification experiments, subject's discrimination was also tested in a closed set task. Two words were shown to her; experimenter uttered one of the words, subject had to point to the correct one based on the length and number of syllables she felt.

In stress recognition task, subject had to tap the table as soon as she perceived the difference in magnitude of vibration. Prior to starting the experiment, she was given several demonstrations where stressed syllable (long vowels and geminated consonants and aspirated syllables) were contrasted with unstressed ones and she was made to feel the difference. Later, in a closed set recognition task she was asked to discriminate the word "gadi" from "Gaddi" or "Uppu" from "Upu" etc. She was reinforced on a fixed ratio schedule of FR 7. Experiment

terminated when she gave a criterion response of 90% or more correct on disyllabic and trisyllabic words. The intonation recognition task was also a closed set task. The neutral patterns were contrasted with angry patterns, statements with questions and neutral statements with request type sentences. After the stimulus was presented she was asked to point out to the correct sentence.

In the course of the experiments described above, it was felt that bilabial voiced as well as voiceless plosives have a distinctive ibratory pattern compared to other classes of consonants because, every time a word began or ended with these plosives the child would express through gestures that the membrane hit hard against her palm and fingers. Series of di-syllabic and tri-syllabic words were collected, some of which had these phonemes and other which did not. Child had to say "undi" when she felt the plosive. For instance word "nalli" (bed bug) was contrasted with "balli" (lizard). Similarly the "arupu" (yell) with "arugu" (cement bench) criterion response was correct 90% or more bases correct. In order to see whether the child would be able to perceive the actual position of these plosives in words, word "lipi" (script) was contrasted with "puli" (tiger). Subject had to raise one or two fingers indicating the syllable in which bilabial plosive occured. Later on, the same procedure continued by presenting stimuli in an open set, for eg., the stimulus string was a gu - a pu - anu - aku or balu - kalu - rolu - calu. The expected response was 2 in the first string and 1 in the sedond string.

Results and Discussion:

There are very few meaningful monosyllabic words in Telugu. The data based on the limited stimuli indicates that these words have distinctive vibratory pattern, a single energy burst. Subject could distinguish them from di-syllabic and other longer units very easily. She gave criterion response within five sessions. Unlike the subjects of Erber (1974), the subject of this study did not perceive any of the di-syllabic words as monosyllabic. For instance, the strong-weak pattern of trochaic word "lemon" was felt as one single energy burst by his subject. Similarly the word "laura" which had two syllables was felt as consisting of one long syllable vibrotactually.

A trachiac word "ca ku" (knife), which has a typical strong-weak stress pattern was correctly perceived as having 2 syllables but a spondaic word "mida?" (is it yours?) in which the second syllable receives either equivalent stress or secondary stress compared to first syllable was perceived as a tri-syllabic word in which the second syllable with geminated consonant was considered asadi-syllabic word, probably because of the emphasis it received. Prabhakara Babu's (1977) mingographis studies have shown that a syllable is stressed/emphasized if it has a long vowel or a geminated consonant and native speakers of Telugu employ these strategies when they want to emphasize certain lexical items. The duration of closure (hold) was found to be much longer when the word "pacci" is emphasized

than when it is not. Also, while the duration of held for a word like "madi" was 0,05 sec., for "maddi" (dirt) it was 0.15 sec., and for "maddi" with extra emphasis it was 0.25 sec. The duration of hold for a short vowel in "padi" (measure) was 0.1 sec., and the same for a long vowel "padi" (diary) was three times that for short vowel or 0.2 sec. This empirical data on emphasis in Telugu might explain the errors in vibratory perception noticed in the present study,

Generally, it is the first syllable of a word that has the main accent, in Telugu. In words of more than four syllables, which are not compounds, the secondary accent is rarely noticed (Sitapati 1935). In the production of tetra-syllabic word 'tiragali' (grinder), only the first syllable is stressed. The consonant vowel combinations in the rest of the syllables have neither a prolonged vowel nor a geminated consonant. It is possible that these three syllables did not carry distinct vibratory patterns and all that the child could feel was a strong-weak pattern. So she reported it as a di-syllable word (see Fig.2).

The final syllable of a Telugu word is generally unaccented, but if it is a significant particle as in "Kani" (Let it happen), the secondary stress may fall on it (Sitapati, 1935). In the tri-syllabic unit "Kavala?" (Do you want?) all the three syllables have equal amount of emphasis. The duration seemed to have influenced vibratory perception, because the subject felt this word as a tetra

syllabic word. Vowel duration was found to be significant in perception of stress in English also. Changes in vowel duration ratio can swing listener's perception (auditory) of stress from first syllable to the second syllable in a di-syllabic word (Fry, 1959). This explains why the subject could perceive (tactually) "kavali" as three syllables and "kavala?" as four syllabic word. In a closed set task she could very easily distinguish similar words.

The tetra-syllabic word "kallajodu" (spectacles) was felt correctly but a similar word "erra rangu" (red colour) was felt as tri-syllabic word. Same was true with "tella langa" (white skirt), Similar results were reported by Erber (1971 a) Martony (1974 a) Zeiser and Erber (1971), whose subjects experienced great difficulty perceiving, words like "railroad" hammer, running etc. In all these cases, voiced continuant consonants /l,m,n,r/ were at syllable boundaries and they seemed to have merged with one another. The result is each syllable which could be heard distinctly did not carry separate energy burst and the child might feel two or three different syllables as one very long syllable.

As far as the length is concerned, the child could respond correctly and consistently with most of the disyllabic and tri-syllabic words but not so with longer units. Specifically, she had no difficulty reporting the duration configuration of syllables in words like "nadi" (River), "mugguru" (three) etc., but word like "galimara".

"nanna garu" were erroneously reported. The word "gali" (wind) when uttered naturally was felt by her as di-syllabic word but when the vowel "a" was intentionally prolonged she reported it as a tetra syllabic word. It was true with several other similar words. This finding, along with other findings discussed so far emphasises the fact that duration is one of the important parameters in vibratory perception.

The vibratory cue for stress or emphasise seem to be magnitude of vibration (force with which the membrane vibrates) which is more for stressed syllables. The subject gave criterion responses on the 10 pairs of words presented to her. For eg. she could distinguish "gaddi" (hay) from "gadi" (patch); "gudi" (temple) from "gudu" (nest), (even though the final vowels are different) very easily.

Analysis of the responses in intonation identification task suggest that imperative statements can be distinguished from interrogative sentences by profoundly deaf children through vibration, but the angry and request types could not be distinguished from neutral statements. Since the data was very limited, conclusive statements cannot be made at this point. Erbar's (1978) subjects could learn to distinguish neutral vs.sad speech patterns from happy and angry sentences. However, they had great difficulty perceiving the distinction between happy and angry sentences. Erbar explained that the difference is only in the fundamental frequency contour, which is difficult to perceive through vibratory sense.

The results on the plosive recognition task were also encouraging. Since care was not taken to give equal representation to all the phonemes, it is difficult to make conclusive statements. However, the greater constriction to the air stream and sudden release during the producation of bilabial plosives does seem to have distinctive vibratory cues. In any case more data is needed to understand stimulus variables such as phoneme type. Inspired by the results of this experiment, the author wishes to suggest that the vibratory trainig for young profoundly deaf children with limited language should consists of the following steps.

1. Have the child to initate the number of beats on a drum. The beats of the teacher need not be seperated by equal intervals of time.
2. Demonstrate slow and quick motions of the hand while beating the drum and have him repeat the same.
3. Demonstrate loud Vs. soft beats and have him reporduce them on a drum.
4. Demonstrate long beats, short beats and contrast them. Have him give non-verbal responses such as writing "-" for long beat and "." for short beats. Have him repeat two short beats (..), two long beats (--), one short and one long beat (. -) and so on in slow and quick motion.
5. Introduce long and short vowels contrast back vowels with front vowels.

6. After sufficient practice with vowels plasive consonants should be introduced. Child should be taught to perceive the difference the magnitude of vibration that occurs for voiceless phonemes as compared to voiced phonemes, unaspirated phonemes as compared to aspirated phonemes. A few examples of stimulus words which can be used in the initial period vibratory training are:
Po (go), Pu (flower), Papa (doli) Pappu (dhali), Uppu (salt), Upu (swing), Wippu (peal), Wapu (Swelling), Apu (Stop), Babu (boy).

7. Child should then be thought to contrast words like "papa" from "papru" or "Aku" and 'akka' in which the second syllable receives relatively more emphasis due to termination.

After sufficient training using all the other phonemes except the high frequency fricatives and affricates, child can be taught to distinguish certain intonation patterns of sentences like "adi kavali" (I want that) or "adi kavala? (do you want that?).

Vibrotary training is meaningful only if the child has access to the vibrator, virtually the whole day, Therefore, wearable vibro-tactile aids should be developed. They should be attached to powerful hearing aids with low frequency emphasis which will enable the profoundly deaf perceive suprasegmenal information in speech better than the individual hearing aids alone does.

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4.1.0 # A COMPARATIVE STUDY OF THE ADJUSTMENT OF NORMAL, MENTALLY RETARDED AND HANDICAPPED CHILDREN

by

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A B S T R A C T

The level of adjustment of a sample of mentally retarded, and a sample of handicapped (deaf and dumb) was compared with that of a sample of normal Ss. The age of the Ss ranged between 12+ and 17 years. The level of adjustment of the Ss was measured with the help of a problem checklist developed by the author.

It was found that the mentally retarded were less well adjusted compared to the normal group in the areas of health and physical development, finance and living conditions, personal adjustment, social adjustment, future:vocational, educational, marriage and sex, parents and home, academic adjustment and also with regard to their overall adjustment.

The handicapped differed significantly from the normals with regard to their adjustment in the areas of health and physical development, finance and living conditions, social adjustment, marriage and sex and over all adjustment. In all these areas the handicapped were less well adjusted than the normals.

The mentally retarded were less intelligent than the handicapped, who were in turn less intelligent than the normal group.

Every individual in any democratic society has a right for appropriate education or training so that he can use his potentialities, however, weak or strong they may be, and become a useful citizen without being a

it is the hounden duty of any society to take care of all its children - gifted, normal as well as the handicapped.

The early history of the handicapped was pathetic and tragic to say the least. In primitive and ancient times the handicapped were often discarded or destroyed, while in the middle ages and even today they are often emploited as clowns, fools or buffoons. Systematic and scientific work on the problem of looking after the retarded may be said to have begun with the work of Itard (1774-1939) on the wild boy (Victor) who was found in the forest of Aveyron in France. Seguin (1812-1880) followed his master Itard, in the service of this retarded and indeed went one step ahead and established the first public residential school for them. The Education for all Handicapped Children Act of 1975 (Abeson and Bettel, 1977), and today there are many institutions in US and other advanced countries to take care of the educational needs of the handicapped. In India, however, the existing facilities for the education of the handicapped are 'extremely inadequate' (Report of the Education Commission, 1966). Let us hope that in the Inter-national Year of the Handicapped, India will be able to make strides in this badly neglected area.

Life is a process of satisfaction of needs. However, the satisfaction of these needs is very often hindered by some difficulties or problems. The organism lives or dies depending upon its capacity to solve its problems.

Thus the individual who can effectively solve his problems and adjust to the environment, or modify the environment to suit his needs may be considered a well adjusted personality. No wonder therefore, that many a researcher devoted their attention to the psychology of adjustment. Several studies have been reported for example on the relation between adjustment and achievement (Coombs and Davis, 1967; Ahluwalia, 1969; Chawla, 1970). Some studies on the level of adjustment of different stratifications of students on the basis of type of family (Srivastava, et al, 1975; Conklin, 1976; Kurian, 1976), number of siblings (Rajalakshmi Muralidharan, 1969), occupational and educational status of parents (Yarrow, 1961; Venkata Rami Reddy, 1976; 1977), economic status of the family (Venkata Rami Reddy, 1979), etc. have been reported.

Studies on mental retardates concentrated their attention on their ability to deal with tasks requiring verbal mediation (Milgram and Furth, 1963; Balla and Zigler, 1964), the effect of failure on their cognitive style of functioning (Stevenson and Fahel, 1961; Zigler and Williams, 1963). Goodlad (1954), Coffield and Blommers (1958), Chambers and Caterall (1965) found that promotion of the mentally retarded from class to class without detaining them contributed to their social adjustment as well as academic standard, measured at a later stage. Wallin and Kolstoe (1966) observed that retardates' value judgements tended

to be absolute. They were quite ego centric and developed bizarre cause and effect relationships. Johnson (1963), Jordan (1966), Mathis (1970) and Shankar (1976) pointed out that the retarded were rejected by peers, parents and even teachers at times, leading to frustration. According to Shankar (1976) many of the retardates relapse into anti-social behaviour.

As early as in the 4th century B.C. Aristotle observed the absence of speech among the deaf; Chuang Tsu of China emphasised that children learnt to talk by hearing others talk and not because they were specially taught. Demosthenes seems to have placed pebbles in the mouth of stutterers to correct their speech (Fay, 1912). However, much of the scientific work in the case of the deaf and dumb is also of recent origin. A good amount of empirical work was carried out in the controversial area of different methods of teaching the deaf (Vernon, 1963; Advisory Committee on the Education of the Deaf, 1965; Meadows, 1968), while some others like Goyer and Yankauer (1959), James and Cooper (1966), investigated on the ability of the teachers to identify the speech and hearing handicapped children.

Pintner, et al (1941), Vernon (1969) and Mathis (1970) found that the deaf and dumb were mentally retarded to some extent and that their average IQ was less than 100. They were 2 to 5 years retarded in educational achievement compared to the normal children (Fusfeid, 1955). However, Meyerson (1955) reported conflicting results regarding the difference between the IQ of the deaf and normal children.

It may be seen from the above brief review that not much is known about the level of adjustment of mentally retarded and the deaf and dumb children compared to the normal.

Problem

Hence, the problem chosen for the investigation was a comparative study of the level of adjustment of the normal, mentally retarded and handicapped (deaf and dumb) children.

Sample

Students of VIII, IX and X classes in secondary schools located in Chittoor district of Andhra Pradesh and those belonging to V and VII classes of a School for the deaf and dumb located in the same district, constituted the population for the study. At the out set the secondary schools in the district were divided into three categories as urban, semi-urban and rural depending upon the locality in which they were situated and a proportionate sample of 630 students distributed between the two sexes, the three classes (VIII, IX and X) and the three localities (urban, semiurban and rural) was selected by a multistage stratified random sampling procedure. The sample of students was administered Raven's progressive matrices test to assess their mental ability. Those falling below the 5th percentile on the distribution of the scores obtained on the RPM by the 630 students were treated as mentally retarded following Heck (1940), Mayo (1962), Report of the US Office of Education (1972) and Shankar (1976), who found that there

were approximately 3 to 4½ per cent mentally retarded in the school population. This procedure of administering the RPM and taking those who fell below the 5th percentile was followed to identify the mentally retarded students because of the non-availability of a standardised verbal test in the regional language (Telugu) which could give the IQ of the children. Further, the RPM has a unique advantage in that, it is a power test without a time limit and so the students need not work under stress of a time limit. Hence the errors in the scores that may occur due to anxiety are eliminated. Further the test contains figures which are interesting and absorbing and so provide necessary motivation for the students to take the test. Apart from this, the RPM is particularly suited to this investigation because the same test can be used on the deaf and dumb also, so that their scores can be compared with these obtained by the normal as well as the mentally retarded students.

20 students fell below the 5th percentile, who were taken as mentally retarded. A random sample of 20 pupils was selected from the remaining 610 to represent the normal group. The age of the Ss ranged between 12 and 17 years.

In this region of Andhra Pradesh there is only one school for the handicapped that is for the deaf and dumb. There were 29 students in the V and VII classes in that school, out of whom 4 were below 12 years of age*. From the

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*There are no students in the VI class in the current year in that school.

remaining 25 students 20 were selected at random to serve as Ss for the study. The age of most of these students also ranged between 12 and 17. There were 2 students who were 18 years old.

Method

S.V. Problem Check List developed by the author was used to assess the level of adjustment of the sample of Ss. The above check list contains 256 items which measure adjustment in 10 areas, viz., Health and physical development (HPD), Finance and living conditions (FLC), Personal adjustment (PA), Social adjustment (SA), Future vocational, educational (FVE), Moral and religious adjustment (MRA), Marriage and sex (MS), Parents and home (PH), Academic adjustment (AA) and Study habits (SH). The predictive validity of the instrument was established by administering it to known groups. Its content validity was established by 30 judges comprising of secondary school teachers and postgraduate and research students of psychology and 50 secondary school pupils. The test-retest reliability of the checklist was 0.96 with a time interval of one week between the two administrations (N-147) varied between 0.85 and 0.95.

In this problem checklist as in the Mooney Problem Checklist (Mooney, 1950), the number of problems marked by an individual in any adjustment area constituted his adjustment score in that area. Hence, the higherr the score on the instrument the less the level of adjustment.

The checklist was made anonymous to ensure free and frank expression of their problems (Fisher, 1946) especially from female Ss in delicate areas like problems related to marriage, sex, etc.

Results and Discussion

Table shows the mean adjustment scores of the three categories of Ss. It may be seen that the mean scores of the retarded were higher than those of the normals in all areas indicating that the former were less adjusted than the latter. *t* test was applied to find the significance of the difference between the mean scores of the two groups.£ The results of the *t* test are shown in the 5th column of the table.

It may be seen that in the area of Health and Physical Development (HPD) the mean score of the normal Ss was 3.05 while that of the retarded was 5.70. The difference between the two means was significant at 0.05 level (*t* =2.42). This shows that the retarded were significantly less well adjusted than the normals with regard to their health and physical development. According to Culley, et al (1963), Mosier, et al (1965), Kirk (1970), the mentally retarded show a general developmental retardation. They have more physical defects than the normal. The results obtained in the study are in line with the above findings.

£ As the purpose of the investigation was to compare the level of adjustment of the retarded with that of the normal, and that of the handicapped with the normal, *t* test was applied instead of applying ANOVA taking all the three groups together.

Table

Means and SDs of normal, mentally retarded and handicapped groups on different areas of adjustment (Each group N=2)

Area		Normal	Retarded	Handi-capped	$t^{£}$	t^{ff}
HPD	M	3.05	5.70	8.05	2.42*	6.00***
	SD	2.04	4.45	3.12		
FLC	M	3.35	6.75	6.20	2.55*	3.05**
	SD	2.43	5.45	3.40		
PA	M	4.60	7.30	4.90	2.68*	0.27@
	SD	2.60	3.68	4.26		
SA	M	3.00	6.40	5.50	3.36**	2.28*
	SD	2.53	3-76	4.20		
FVE	M	4.35	7.40	4.90	2.20*	0.48@
	SD	3.72	4.95	3.58		
MR	M	3.10	3.95	3.00	1.06@	0.11@
	SD	2.23	2.82	3.22		
MS	M	1.15	4.30	3.15	3.51**	3.02**
	SD	1.24	3.33	2.69		
PH	M	3.85	4.90	4.85	0.92@	0.94
	SD	2.82	4.25	4.03		
AA	M	6.65	9.45	8.30	2.04*	1.23@
	SD	3.95	4.36	4.52		
SH	M	4.00	4.80	4.10	0.87@	0.12@
	SD	3.11	2.71	1.97		
Over-all	M	37.00	60.65	53.10	3.33**	2.24*
	SD	15.92	27.29	27.92		

Note: *** t significant at 0.001 level.
** t significant at 0.01 level.
* t significant at 0.05 level.
@ t not significant at 0.05 level.
£ t values for the difference between the means of normal and retarded groups.
ff t values for the difference between the means of normal and handicapped groups.
None of the t values for the difference between the means of retarded and handicapped groups was significant at 0.05 level.

The normal Ss were better adjusted than the mentally retarded in the area of Finance and living conditions (FLC) also. Many of the retarded belong to the poor families and live in substandard homes which are inferior in sanitation and attention to health matters (Dingman and Tarjan, 1960; Hunt, 1969; Kirk, 1970). This explains the significant difference between the retarded and the normal in this area of adjustment, viz., finance and living conditions.

According to Kirk (1970) the retarded have a low level of frustration tolerance. Though Heber (1964) observed that the available research data is not sufficient to draw a definite conclusion in the area, many contend that the retarded have feelings of inadequacy, lowered self-concept and increased anxiety (Hunt, 1969). It is no wonder that the retarded exhibited poor adjustment in the area of personal adjustment compared to the normals.

The retarded are rejected by their peers, teachers and even their parents at times (Johnson, 1963; Jordon, 1966; Mathis, 1970; Shanker, 1976). The rate of social development of the retarded is one half to three fourths that of the normal (Kirk, 1970). Prevalence of delinquency is more among the mentally retarded than among the normals (Beier, 1964; Shanker, 1976). The results obtained in this study derive support from the above findings. The mean score of the retardates with regard to their social adjustment (SA) was 6.40, while their normal counterparts obtained a mean score of 3.00 showing that the retarded were not and socially adjusted as the normals.

When they could not make satisfactory social adjustments with the members of their own sex it is no wonder that they were not well adjusted with the opposite sex.

This is reflected in the low level of their adjustment in the area of Marriage and Sex (MS).

The mentally retarded were significantly less adjusted than the normal Ss in the area of academic adjustment (AA) also. The fact that the retarded are inferior in their mental ability does not permit them to follow the school curriculum which is mainly designed to suit the needs of the average child. It is but natural that the retarded have more problems in this area of adjustment. That the retarded are not able to achieve well in their academic pursuits has its inevitable effect on their adjustment in the area of Future: vocational, educational (FVE).

The mean overall adjustment score of the normal Ss was 37.00, while that of the retarded Ss was as high as 60.65. The difference between the two means was significant at 0.01 level (t=3.33). This shows that the mentally retarded were significantly less adjusted in general than their normal counterparts.

An examination of the mean scores of the normal and handicapped show that the latter obtained higher mean scores in almost all areas of adjustment indicating inadequate adjustment of the handicapped compared to the normal.

As the deaf and dumb are deprived of the most vital tools of interaction with others they tend to get rejected and feel dejected. They were found to exhibit personal and social mal-adjustment (Wallin, 1966; Shanker, 1976). They

were lagging behind the normal in their social maturity (Treacy, 1955). It may be seen from the t values presented in the last column that the normal and the deaf differed significantly with regard to their social adjustment. This result is in line with the above findings.

The deaf were emotionally maladjusted (Myklebust, 1964) and exhibited inferiority complexes, anxieties, fears and tensions (Goodstein, 1958). However, those enrolled in residential schools were far bettter off than their counterparts in day public schools (Quigley and Frisina, 1961; Myklebust, 1964). In this investigation also the sample of deaf were drawn from a residential school. As such there was no significant difference between the level of personal adjustment of the normal and the handicapped.

It is needless to point out that when the deaf and dumb could not make satisfactory social adjustments with their peers, they would have more problems in making friends with the opposite sex. Further, the fact that they were handicapped would be a big hurdle in their getting married. Hence the handicapped were significantly less adjusted than the normals in the area of Marriage and sex (MS).

Fiedler (1951) reported that a majority of the deaf students hailed from low SES groups. This was true of the sample of Ss in this investigation also. The normal and handicapped differed significantly with regard to their adjustment in the area of Finance and living conditions (FLC).

The low SES is very often accompanied by poor sanitary conditions of the home and lack of proper medical care. All these have their invariable effect on the health and physical development of the children who are already handicapped. This is reflected in the inadequate adjustment of the handicapped group compared to the normal Ss in the area of Health and physical development (HPD).

In the overall adjustment also there was a significant difference between the level of adjustment of the handicapped and the normal, showing that though the handicap is only in certain parts of the body, it is the whole person that is effected.

A comparison of the adjustment scores of the mentally retarded and the deaf and dumb showed that the latter were somewhat better adjusted than the former in all areas except Health and physical development (HPD). However, none of the differences between means was significant at 0.05 level.

With regard to the mental ability of the handicapped and the normal, the mean RPM score of the handicapped Ss was 23.70, while that of the normal group was 35.00. The difference between the two was significant at 0.001 level (t=3.84, df=38). The mean score of the retarded group was 15.30. This was significantly less than the mean score of the handicapped group (t =3.98, significant at 0.001 level for 38 df).

Conclusions

The mentally retarded were significantly less adjusted than the normal in the areas of Health and physical development, Finance and living conditions, Personal adjustment, Social adjustment, Future: vocational, educational, Marriage and sex, Academic adjustment and also with regard to the overall adjustment.

There was a significant difference between the normals and the deaf and dumb in the areas of Health and physical development, Finance and living conditions, Social adjustment, Marriage and sex and also with regard to the overall adjustment. In all the areas of the deaf and dumb were less well adjusted than the normal. There was no significant difference between the level of adjustment of the mentally retarded and the deaf and dumb.

The mental ability of the deaf and dumb as measured by the RPM was significantly less than that of the normal Ss. They were, however, better off in this regard than the mentally retarded.

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Nature of Speech and Language Problems in Mentally Retarded Children. Results of a Survey using modified ESN(S) Scale.

By

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A B S T R A C T

A disorder of speach and language may be described as a chronic limitation of an individual's ability to engage in social behaviour involving verbal and sometimes non verbal processes. Many studies have shown that severe speech and language disabilities of the mentally retarded led to under development in relation to other skills in other areas of development. The incidence of speech & language problems increases as IQ decreases. Many studies have typically described speech than language disabilities in the mentally retarded. The aim of this paper was to investigate the nature of difficulties in detail and to develop a suitable testing scale. 50 students admitted to BMVB special section for the Mentally Retarded in the age rangeof 4 to 16 yrs. with an IQ range of 40 to 80 between 1976 to 1980 were taken as subjects; children were tested in the classroom situation thrice a week for half an hour. A scale was developed with the help of ESN(S) scale earlier developed in English for testing. This scale consisted of two parts Reception & Expression with items arranged in hierarchy. Results revealed that 90% of the children have different language difficulties. There was a significant relationship between chronological age and language ability. As the child became older number of correct scoring also increased on both the scales. Mentally retarded children seemed to go through the same stages of development as normal children in respect of single word utterances.

However language development stopped far short of that reached by normal children; the rate of progress slowed down, so that they seemed to to lag further behind the older they grew. There was a significant relationship between I.Q. and items passed. The ability to use language was obviously bound up with the development of intelligence, but the relationship is far from simple. The questionnaire perhaps would be a valuable, objective tool for continuous speech and language assessment. Each child's communicative ability throughout his schooling can be recorded and compared. The result can be used to group children for language work, and prime areas in which this could be concentrated. Teachers can propare their teaching material in a hierarchy incorporating all the features stressed in the study such as gradually increasing sentence length, meaning, number of commands etc.

A disorder of speech and language may be described as a chronic limitation of an individual's ability to engage in social behaviour involving verbal and sometimes non verbal processes. Many studies have revealed that severe speech and language disabilities of the mentally subnormal led to under-functioning in relation to other skills, in other areas of development.

Many studies have shown that the incidence of speech and language problems increases as IQ decreases.

A survey of the literature suggests that majority of the studies have been concerned with speech than with language disabilities of mentally subnormal and have typically described the incidence of disorders of voice or speech sound production associated with organic and inorganic causes.

The aim of this paper is to investigate the nature of difficulties in detail and to see whether speech and language acquisition in the mentally retarded follows a different pattern from that of normal children. Psycholinguists and linguists have shown the system of rules which a speaker appears to be using while using language. The task of the speech pathologist is to try to assess the extent to which these rules operate in a mentally retarded child's understanding and use of language. It is important to find out, at what level the child's use of language rules is faulty and why. The rule system taken for study concerns phonology, morphology and syntax. Investigation was carried out without assuming any theoretical position like developmental vs deficit, performance vs competence, IQ etc. A clear distinction between speech and language was kept in mind. Speech is defined as the use of vocalizations or articulation to express words or vocal symbols. Language is a system of symbols wherein the symbols are systematically related to one another and are capable of generating novel utterances.

According to Caroll (1967)[2] "When we talk, therefore about the language of mental retardates, we are taking about system that they have learnt. When we refer to the speech, we are referring to the actual behaviour of these individuals using language".

Subjects: 50 children admitted to B.M.V.B. special section for the mentally retarded during 1976-1980. Data is given in Table No.1.

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2. Carroll, 1967, Psycholinguistics in the study of mental retardation. In Scale Jelbusch, R.L. (O Peland (eds) Language & Mental Retardation, New York, Holt.

Table - I

Age Range	No.	Sex M.	F	IQ Range	Clinical Group
5 - 8 yrs	18	12	6	40 to 80	Down Syndrom - 5
8 -11 "	12	7	5	"	Cerebral Palsy - 3
11 -14 "	11	6	5	"	Cleft Palate repaired-1
14 & above	9	5	4	"	

For testing, the class room situation was preferred since the child is accustomed to the same and he is at ease. Information thus gained could have direct and relevant implication for the design and modification of individual speech and language programmes.

Methodology: Through observation samples of language were collected during teaching and free play situations. Data were then collected and analysed. Flash cards, action pictures, picture stories were used to elicit, simple one to two word utterances, the use of present, past and future tenses, singular and plural forms, simple and complex sentences. A sample of continuous speech was elicited by telling the group an interesting story illustrated by a suitable picture and then asking the subject to tell the story to the group. Each child was assessed individually in a group without making the child consciousof being tosted. Observation period was twice a week for half an hour. Teachers were briefed about the objectives of the programme and their co-operation was sought. A scale reported by Brenda Kellett and associates (1977)[3] was used with slight modifications.

3. Brenda Kellett-(1977)-An initial Survey of the language OF ESN(S) children in Moinchester-the results of a teachers work shop.
In Language & communication in the mentally handicapped, Edt. by Paul Berry, London: Edward Arnold (Publishers) Ltd.

This modification was done with the help of a Psycholinguist whose other tongue is Hindi. In their survey of EMN(s) children they have divided language skills into two main areas namely reception and expression with subsection for articulation and gesture. This sub-test 'gesture' is not included here as none of the subjects came under this category.

The scale is as follows:

Name of the child Age. Sex.

Clinical Diagnoses

Any other disability like hearing loss, visual defect, physical defect, speech defect etc. etc.

Production - (X) - Direct imitation of digits in series and at random.

a) Direct imitation of single words.
b) Direct imitation of phrases (two to three words)
c) Spontaneous meaningful words.
d) Spontaneous two word utterances.
e) Spontaneous 2-3 word utterances.
f) Complete sentence (even ungrammatical)
g) Grammatically correct sentence.

Reception

a)
b)
c)
d)
e)
f)
g)
h)
i)

Articulation - a) Defective, intelligible, unintelligible.

Results and Discussion: The results tallied with that of ESN(s) survey. The questionnaire differentiated between language ability levels in developmental sequence.

Production - All children were credited with items preceding their present level of functioning. Results suggested that these items were mainly in developmental order as in Graph No.I. This shows that language is perhaps hierarchically organized within as well as between skills. Some skills are essential prerequisites for the development and use of others. Items (a) to (d) looked at the progression from imitation to spontaneous use of single words. 100% could imitate single words (item a) and 75% of used it meaningfully (item c). Items (e) to (g) followed the use of expanded utterances for adequate, if ungrammatical speech. This is 55% to 10%. Only 10% could use grammatically correct sentences (item g). But still their speech was devoid of creativity and novelty. Perhaps this scale should include one more item beyond (g) depicting these features of language. There seems to be a significant relationship between chronological age and items passed as shown in Table 2. As the child becomes older number of higher items passed also increased. Maturity perhaps plays an important role in language acquisition and its stabilization.

Table - 2

N	C A	a	b	c	d	e	f
18	5 - 8 yrs	2	3	4	5	2	2
12	8 -11 "	2	1	1	3	2	3
11	11 -14 "	Nil	Nil	2	3	3	3
9	14 +	Nil	Nil	Nil	1	4	4

This observation has been cited by many authors. Lenneberg.[4] et. al (1964) [4] Blanchard(1964)[5] Webb & Kinde,[6] (1968). Mentally retarded children seemed to go through the same stages of development as normal children in respect of single word utterances. However language development stopped for short of that reached by normal children, the rate of progress slowed down as the children became older, so that they seemed to lag further behind the older they became.

There was a significant relationship between I.Q. and items passed. As the I.Q. increased number of children passing items (e) & (f) also increased as shown in Table 3. The ability to use language is obviously bound up with the development of intelligence, but the relationship between them is far from simple.

Table - 3

	Items					
Number	I.Q. range	a	b	c	d	e	f
13	50 - 60	2	3	1	4	1	2
18	60 - 70	2	2	4	3	2	3
12	70 - 80	1	Nil	Nil	Nil	5	6
7	80 +	Nil	-	-	-	4	3

In view of the results i.e. delay or deficit in language abilities, questions our dependance on 'exposure' to a rich and linguistically stimulating experience. This may be an act of faith than judgement unless specific efforts are directed to obtain the desired verbal interaction.

4. Lenneberg, E.H., Nicholos IE and Rosenberger E.F.(1964) Primitive stages of Language development in Mongolism In Disorders of communication, XLII, New York, Assoc Res. Neol, Ment. Dis.

5,6. Mittler P.S, Language & communication.

In a recent study by Gillion Fenn (1977)[7], it is evident that a controlled and structured approach to language teaching would be more helpful to the M.R. children than an enriched environment. In some cases children may be more confused and unable to cope because they are receiving too much stimulation. They are unable to extract from such an environment sufficient information to build their own language structure.

Reception - This was assessed as the ability to respond appropriately to instructions graded in complexity and length. A native Hindi speaker who was a linguist helped during translation. Items were selected in such a way that there was little chance for the child to guess. The child had to perform fairly unexpected actions with the test material. Care was taken not to violate pragmatic expectations for example, put the spoon under the cup, if the interation is to test the seperation. During testing, as far as possible, non-linguistic cues were excluded.

The over-all trend of correct responses was downward, 90% responded to simple instruction compared to 40% to a complex sentence.

An interesting result was seen when instruction length was kept constant but meaning was varied. 100% responded to item (b) but 90% to item (c). A significant relationship was seen between I Q and items scored. This was similiar to that of production part. The table reveals the relationship between CA and items scored.

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7. Gillion & Fenn (1977), Against verbal enrichment p.84. In Language & Communication in the mentally handicapped, Paul Berry (1967) Edt. London, Arnold(Publishers) Ltd.

Table - 4

Age Group	No.	Items								
		a	b	c	d	e	f	g	h	i
5 - 8	18	-	-	-	-	9	7	2	-	-
8 - 11	12	-	-	-	3	2	3	1	2	1
11 - 14	11	-	-	-	1	1	4	2	2	1
14 +		-	-	-	-	-	-	1	2	6

Processes underlying reception of language are difficult to isolate. The child needs to be able to attend, listen, discriminate between sounds and later to adapt to the sequential aspects of incoming language. Our therapy should try to help a child improve basic skills such as attention, discrimination between sounds, words and sentences gradually increasing in length and complexity.

It was interesting to note that all the Down's Syndrome Children compared to other clinical categories scored high on expressive items compared to receptive items.

Articulation - 22% of the children had misarticulation. 14% unintelligible and 8% intelligible inspite of defective articulation. Mostly the misarticulation children came under items (a),(b),(c),(d) (production). It appears therefore that the articulation of the majority of this population does improve with age and general expressive competence.

All the 11 children exhibited short auditory memory span for digits at random (3 & below) compared to other children without misarticulation.

Conclusion - Generally, a child who functioned low on one scale did so on another. However, direct comparison between items on the reception and production scales is not

possible as levels are not equivalent. In the absence of gross sensory/physical disability, the older the child, the higher is his expressive and comprehended language. Even within the specified age range, groups were not homogenous However, these results do indicate possible grouping of childre for language work and prime areas in which this could be concentrated. The questionnaire made teachers more aware of the language functioning in their group. Some of them even felt that the questionnaire over or under-estimated, some aspects of language, particularly on the higher items of the production side. This may be due to the fact that no distinction was made for the quantity and variety of utterances.

The results of the study are to a certain extent dependent upon subjective interpretations of items by teachers even though each item was explained clearly. This questionnaire perhaps would be a valuable tool for continuous speech and language assessment and each child's progressive, communicative ability through school can be recorded and compared. While teaching speech and language to these children, teachers can prepare their teaching material in a hierarchy, incorporating all the features such as gradually increasing sentence length, commands meanings, etc.

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8. Thomas S. BALL. Sensory Education-A Learning Interpretation.(1977) The slow learners series MPC, Columbus, OHIO.

4.3.0 COGNITIVE DEVELOPMENT OF EDUCABLY MENTALLY RETARDED*

by

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ABSTRACT

The main intent was to assess the cognitive development of EMR and compare them with the normal children.

Fifty children identified as educably mentally retarded after administering coloured progressive matrices were selected for this study. Cognitive development of the children was assessed by 'Cognitive Development Status Test'. Information regarding their age, parents' occupation, education, income were collected from the files maintained in the schools. After analysing the data the investigator found that the items which were not performed by children of 7 to 8.6 years old were performed by children of 8.6+ years old. Educably mentally retarded children are capable of performing certain items of Cognitive Development Status Test at later ages than normal children. They lag behind very much in performing conservation items. The educably mentally retarded children also have three different stages of conservation

*Based on my unpublished M.Ed. Dissertation entitled "Cognitive Development of Educably Mentally Retarded", University of Mysore, 1980 guided by Dr. A.S. Raghavakumari, Lecturer, Department of Education, University of Mysore.

such as non-conservation, transition and conservation. EMR children of age 8.6+ years are equal to normal children of 6-7 years in cognitive development. The difference between mean performance of girls and boys is negligible. There is a high, direct relation between intelligence and cognitive development. Cognitive development is independent of SES. Further cognitive development is less affected by SES.

At present the educators are more concerned about the cognitive development of the individual although alround development of an individual is the overall purpose of education. The development of cognition does not mean only acquiring knowledge about the world, planet, solar system but its significance in normal day-to-day activities like judging the amount of food, quantity of water in different containers and the like . It is a great puzzle and at the same time interesting to know the reason why the child prefers the smaller container instead of the big one. Jean Piaget has attempted to answer such questions. He has succeeded in giving explanations to such a type of cognitive behaviour of children by evolving and elaborating a set of constructs which have in many instances provided amazing insights into the development of the functions and structures of the human mind, though Piaget believes in the capacity to learn, he maintains that intelligence is only reflected in the pool of knowledge which has been acquired by an

individual. Piaget exhibits his uniqueness in preoccupying almost exclusively with the functions and the structures which underlie an intelligent activity.

Being educators, we can develop a better insight into the capabilities of children by studying the cognitive development rather than content of intelligence. Because the phrase "cognitive development" refers to the growth and change in such phenomena as thinking, perceiving, imagining, problem-solving and concept formation. The concept includes five major response classes which are very much essential in undergoing the process of education : (i) perceptual differentiation of environmental stimuli, (ii) development of a vocabulary that allows the child to label external events and internal feelings, (iii) acquisition of rules about natural events and the ability to apply rules of reasoning to problem situations, (iv) increased capacity for immediate memory resulting, in part, from more efficient use of abstract words to group or "chunks" of information, and (v) increased ability to communicate thoughts verbally or graphically. In his developmental theory of cognitive development, Piaget has attempted to find out what are the different types of tasks the children are capable of performing, and what are the different types of mental operations available in children at different age levels. This theory has many educational implications and guides educators in curriculum development, instructional methodology,instructional materials etc.

Though Piaget developed his theory based on normal children it has its own implications for the field of mental retardation. There are two relevant concepts in Piaget's theory :

(1) Developmental orientation - Piaget has given us a picture of a central nervous system, which as a result of its intercourse with the environment during the formative years, constantly forms levels of integration which are both quantitatively and qualitatively different from the syntheses out of which they have evolved.

This orientation shifts our attention towards what they lack. This results in gaining a much richer and fuller picture about profundly retarded adults and even more significantly, the mildly retarded twelve-year-old whose thought processes are just emerging from the pre-operational sub-period which can be appreciated in terms of the capabilities he has. He can be seen as a child in transit from one whole way of thinking to another.

(2) Stages of development : Piaget sees intellectual development as an unfolding process, marked by the progressive disappearance of earlier symptoms of thought in favour of new higher order systems. He, thus, tends to think of mental retradation as the result of the child's failure to progress beyond inferior levels or stages of integration. The greater the degree of retardation, the lower the level or stage of organisation at whichthe individual is fixated.

Inhelder [illegible] proposed a scheme which classifies mentally retarded adults on the basis of cognitive stage they have attained. In her classificatory system, the severely and profoundly mentally retarded adult ("idiot") is viewed as fixated at the level of sensorimotor intelligence; the moderately retarded adult ("Imbecile") is seen as incapable of surpassing the pre-operational intutive sub-period, the mildly retarded adult ("moron",or Educably Mentally Retarded) is characterized as unable to progress beyond the level of concrete operations,and, finally the borderline adult is seen as able of using only the simpler forms of formal operations.

Educably mentally retarded considered as having (1) minimum educability in the academic subjects of the school,(2) social adjustment to such a point that he can get along independently in the community, and (3) minimum occupational adequacy to such a degree that he can support himself partially or totally, at the adult stage. Because of the only fact that EMR have minimum potentiality for academic achievement we should not neglect them.

The field of special education is now expanding day by day. Till the 19th century no attempt was made to educate the mentally retarded. For the first time Itard maintained a record of attempts at educating the mentally retarded child. He found that even severely retarded children could be improved with continual effort, then there is every possibility

to improve the academic achievement of educably mentally retarded in which alone they are quite disintinguished from others.

Transfer of learning from one situation to another situation is the main feature of education; an educated man is capable of discriminating or generalising the different stimuli and respond correspondingly, only such children who have crossed pre-operational stage and reached concrete-operational stage have the ability to generalize responses. If the child fixates at the pre-operational level itself, he is unable to reason, proceed from the particular to the abstract in an irreversible sequence; he cannot perceive the similarities and come to a generalization. Then there is no use in providing formal education to such a child because that fails to make him an educated individual so it is necessary to find out whether the so called educably mentally retarded will be able to deal with those tasks which are indicative of attainment of concrete operational stages atleast at little older ages compared to normal age, so that the teacher/educator can be able to fix the lower age limit for entrance of such children into the schools so that academic progress can be observed in such children. If we accept Inhelder's classificatory system EMR will be fixated at the concrete operational stage that means he will never attain formal operational stage, which hinders him in dealing with abstract concepts. As far as the mentally retarded are concerned,

the validity of the classificatory system is not justified through research.

Marywoodward studied 147 subjects, 7 to 16 years of age, who were either profoundly or severely retarded. Each child was presented with a variety of problems relevant to each of the six stages of sensorimotor intelligence and observed that the sequence of developmental indices of sensorimotor intelligence which Piaget has described for normal children is applicable to mental retarded children.

Piaget maintains that cognitive development takes place as a result of interaction of an individual with the environment. The organism is constantly being reciprocally moulded by and is being moulded by the environment. This suggests that through the enriched congenial environment it is possible to make one capable of utilizing his potentiality to the best possible extent. If an individual exhibits relatively lower cognitive development than his level of intelligence, it implies that such an individual is deprived of a congenial environment for interaction. This can be varified by finding the correlation between intelligence which is generally considered as innate and cognitive development.

OBJECTIVES

1. To find out what cognitive tasks the EMR are capable of performing at particular age levels.

2. To compare the cognitive development of EMR children (both boys and girls) of different age groups.

3. To compare EMR with normal in terms of performance on some tasks demanding cognitive development.

4. To compare the thought processes of EMR with that of normal at the conservation stage.

5. To find out the relation of cognitive development with SIQ and SES among EMR students.

METHODOLOGY

Subjects

On the basis of teachers' opinion all children with poor academic achievement who feel within the age range of 7 to 96+ were selected from 6 primary schools meant for normal children in Mysore city and Chamarajanagar (a suburb). These children appeared normal with respect to physical development, language development and school adjustment. Among such children, 50 were identified as educably mentally retardd after administering Raven's Coloured Progressive Materices. The fifty children thus identified constituted the sample for this investigation. The sample included 23 boys and 27 girls. Table 1 below gives an idea about the distribution of the sample.

TABLE 1

Distribution of the Sample according to Age, Sex and Scores on CPM (N = 50)

	Age group	Boys	Girls	V grade (according to CPM)	Below III & above V grade (according to CPM)
(a)	7 - 8	2	4	5	1
(b)	8.1 - 8.6	9	8	14	3
(c)	8.7 - 9.0	4	5	5	4
(d)	9.1 - 9.6	5	4	8	1
(e)	9.6+	3	6	6	3
		23	27	38	12

For the sake of convenience and to avoid limitations resulting from small sized samples in the different age groups, (a) abd (b), that is, from 7.0 to 8.6 years were considered as Group I and (c), (d), and (e) that is, from 8.7 to 9.6+ were regarded as Group II for the purpose of analysis of the data.

To such a sample Cognitive Development Status Test (CDST) developed by Padmini and Nayar, Department of Education, University of Mysore, 1980 (unpublished) was administered individually to assess the cognitive development. Proper rapport between the investigator and subjects before assessment was established, the children were encouraged to perform tasks through positive reinforcement (negative reinforcement was avoided throughout the period of testing). Test was administered in two sittings to avoid the interference of fatigue in performance and to maintain interest of the subject.

The information about child's date of birth, parents' education, occupation, income was collected by

referring to the files maintained in the schools. Child's SES was found out by employing revised edition of Kuppuswamy's Socio-economic Status Scale (1977).

HYPOTHESES

To meet objectives 2,3,4 and 5 the following hypotheses were formulated :

(1) There is significant difference between the means of the Group I and the Group II children with respect to

(a) the following sub-tests:

(i) Metric Relation (MR)

(ii) Spatial Relation (S.R.)

(iii) Conservation (C)

(iv) Temporal Relation (T.R.)

(v) Signs-Symbols (S.S.)

(v) Belongingness (B(and

(b) means of total CDST scores.

(2) There is no difference between the means of the boys and girls of Group I and boys and girls of Group II with respect to -

(a) following sub-tests:

(i) Metric Relation (M.R.)

(ii) Spatial Relation (S.R.)

(iii) Conservation (C)

(iv) Temporal Relation (T.R.)

(v) Signs-Symbols (S.S.) and

(vi) Belongingness (B) and

(b) total CDST scores.

(3) There is significant difference between means of the CDST scores of whole sample of EMR and normal children.

(4) EMR also have three different stages of conservation such as non-conservation, transition and conservation like normal children.

(5) There is significant relationship between IQ (measured) and level of cognitive development.

(6) Cognitive development is independent of SES of parents.

RESULTS AND DISCUSSION

(a) Cognitive Development of EMR at Different Age Levels

In order to find out the significance of difference between means of Groups I and II in each sub-test and total CDST 't' of significance was applied.

Table 2 : Means of I and II Groups in each sub-test and total CDST and 't' Ratio between them

Group	MR	SR	C	TR	SS	B	Total CDST
Mean of Group I (N=23)	15.00	17.00	2.80	4.80	9.07	12.46	59.40
Mean of Group II (N=27)	14.00	14.42	4.54	4.76	7.70	14.56	63.57
't' ratio (df=48)	0.05	2.06*	2.14*	0.36	2.05*	1.54	1.12

*Significant at 0.05 level

From this table it is clear that there is significant difference only in 3 cases. The results obtained imply that most of the cognitive abilities will be developed by the age of 7-8.6 years in EMR children.

Judgement of invariance of quantity of matters conservation will be developed at later years, that is, after 8.6 years of age. Though there is significant difference between mean performance of both groups in sub-tests, spatial relations (SR) and Signs-Symbols (SS), it is not possible to give appropriate reason because means of Group I are greater man those of Group II in those cases. This may be attributed to the fact that individual differences in performing a particular task, especially entrance scores will affect the means.

Itemwise comparisons of Groups I and II were also attempted by Item analysis, of course in a crude way, by comparing the percentage of cases who have obtained full credit (maximum marks allotted to that item) and percentages of cases who have obtained partial credit (less than maximum and greater than '0') belonging to Groups I and II.

Table-3 : The number and percentage of Group I (N=23) and Group II (N=27) cases obtained full credit and partial credit in the items of various sub-tests

Items	No. of Cases which had obtained full credit		Percentage		No. of cases which had obtained partial credit		Percentage	
	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II
Subtest-I - Metric Relations (MR) :								
1. Length seriation	9	17	39.15	62.90	13	6	56.55	22.20
2. Area seriation	18	20	82.65	74	3	3	13.35	11.10
3. Volume seriation	0	3	0	11.10	16	10	69.60	37.00
4. Equidistant point location	2	3	8.70	11.10	18	15	78.30	56.50
5. Distance estimation	5	4	21.75	14.80	17	21	73.95	77.70

1	2	3	4	5	6	7	8	9	10
Subtest II-Spatial Relations (SR) :									
6.	Haptic recognition	0	1	0.00	3.70	23	25	100.00	92.50
7.	Figure drawing	0	0	0.00	0.00	20	24	87.00	88.80
8.	Shape recognition	19	16	82.65	59.20	4	11	17.40	40.70
9.	Shape completion	13	11	56.55	40.70	8	13	34.80	48.10
10.	Martial construction	9	13	39.15	48.10	14	14	60.90	51.80
Sub-test III - Conservation (C) :									
11.	Number	6	19	28.10	70.30	2	0	8.70	0.00
12.	Area	1	7	4.35	25.90	14	1	55.55	3.70
13.	Length	3	11	13.05	40.70	2	4	8.70	14.80
14.	Mass	1	7	4.35	25.90	0	0	0.00	0.00
15.	Liquid	2	7	8.70	25.90	2	4	8.70	14.80
Sub-test- IV : Temporal Relations (TR) :									
16.	Doll Racing	2	2	8.70	7.40	21	25	91.30	92.60
Sub-test V - Signs Symbols (SS) :									
	Decoding symbols	2	7	8.70	25.90	20	20	87	74
	Decoding signs into action	16	25	69.60	92.50	6	3	26.10	11.10
Sub-test VI - Relongingness (B) :									
	Classification of pictures	0	5	0.00	18.50	15	15	65.25	48.10
	Classification of shapes	5	4	21.75	14.80	18	23	78.30	85.10
	Identification of odd thing	4	8	17.40	29.60	11	13	47.85	48.10

It is found that considerable percentage of children in both the groups had obtained partial credit. This may be due to the fact that each item of CDST in its turn is having more than one situation. Such children were capable of performing only one or two significations of an item. In majority of cases percentage of children who had obtained full credit belonging to Group II is more in comparison with those in Group I. This suggests that there is noticeable difference between Groups I and II in performing those tasks. This suggests that children are capable of performing such tasks only after 8.6 years of age.

From the results obtained and the discussion made so far hypothesis can be modified as-there is significant difference between the means of Group I and the Group II only is specific sub-tests and total CDST scores.

As shown in table-3 lesser percentage of children in both the groups were able to give conservation responses. The percentage of children who obtained partial credit, which indicates that they were in transition stage was also less. Nearly 75% of children failed to give conservation responses to any situation indicating they were still in the non-conservation stage. This indicates that EMR children obtain the conservation stage at a later age as compared to the attainment of ability to deal with other tasks (included in other sub-tests). Hypothesis 2 stating "the educably mentally retarded children also have three different stages of conservation such as, non-conservation,

The table value for df=21 at 0.05 level of significance is 2.08 and at 0.01 level of significance is 2.83. Since the obtained value for the sub-tests metric relations, conservation and temporal relation is greater than at 0.01 level, the difference between means of boys and girls in these tests is significant at 0.05 level.

Table 5 - Differences in Group II Among Boys and Girls on Different Sub-tests and Total CDST

Sex	No. of children	M-R	S-R	C	T.R	S-S	B	Total CDST
Mean of boys	12	17.00	18.13	3.14	4.13	9.86	14.22	62.00
Mean of girls	15	14.40	12.57	4.03	4.83	8.96	13.80	61.00
't' ratio (df=25)		0.59	1.92	1.37	0.37	1.93	1.02	0.96

Apparently, though there is difference in mean performances between boys and girls of group II it is not significant at any level since the obtained value of 't' is less than that of table value (2.06) for 0.05 level of significance.

From the results obtained by comparing means of boys and girls of groups I and II separately, it can be concluded that at the age of 7 to 8.6 years there appears to be a difference between mean performance of boys and girls in certain tests and at the age of 8.6 years the ability

transition and conservation" is retained. Along with this, the results obtained also indicate one important fact that, is the child is in conservation stage in one aspect (number, mass etc) may be in transition or in non-conservation stage in other aspect. Attainment of each aspect of conservation is independent of attainment of the remaining aspects of conservation. Moreover, there is rigid sequence in the attainment of conservation stage in different aspects. In this way they resemble normal children.

b) Sex Difference in Cognitive Development of EMR

In order to find out the significance of difference between means of girls and boys in different subtests, an attempt was made to find out the mean of boys and girls within Group I and Group II separately, in different sub-tests and 't' test was applied.

Table 4 : Differences in Group I among Boys and Girls on Different Sub-tests and Total CDST

Sex	No. of children	M-R	S-R	C	T.R.	S-R	B	Total CDST
Mean of boys	11	17.00	18.13	3.14	4.13	9.86	14.22	62.00
Mean of girls	12	11.67	16.67	2.50	5.00	9.17	11.33	56.83
't' ratio (df-21)		2.38*	1.51	2.173*	2.12*	0.52	1.74	1.00

*Significant at 0.05 level.

of girls in performing those tasks appears to be more or less equal to that of the boys.

In the light of the results obtained above and the interpretation made, hypothesis no. 3 can be restated as follows : There is no significant difference between the means of boys and girls of group I except as regards metric relations, conservation and temporal relations.

The second part of the hypothesis that there is no significant difference between the means of Group II boys and girls in respect of (i) different sub-tests and (ii) total CDST, can be retained.

c) Comparison of EMR with Normal Children with respect to Cognitive Development :

The data related to the performance of normal children on CDST was obtained from the work of Padmini (1980). An attempt was made to compare the performances of EMR included in the present study with that of normal children. To compare the mean performances on total of CDST of normal children and educably mentally retard, critical ratio cannot be worked out because normal children are very much younger than mentally retarded children of the present sample. The mean of normal children is 39.97 whereas that of the present sample is 61.0 without applying any technique, large difference can be noticed between the mean performance of these two samples.

Table 6: Comparison of 14 Cognitive Development of Educable Mentally Retarded and Normal Children

Group	Means are	M-R	S-R	C	T-R	S-S	E	Total cost
I_N(N=150)	Means	10.64	9.14	2.69	1.54	8.53	10.58	37.80
(age-range 5-6 years)	%age of means	42.56	36.56	26.90	25.67	71.08	48.09	37.80
II_N(N=150)	Means	15.90	16.40	7.50	3.20	10.01	14.34	57.73
(age range 6-7 years)	%age of means	63.60	65.60	75.00	53.33	83.42	65.18	57.73
I(N=23)	Means	15.00	17.02	2.80	4.80	9.07	12.46	59.04
(age range 7-8.6 years)	%age of means	60.00	68.08	28.00	80.00	75.80	56.64	59.40
$II_{(N=27)}$	Means	14.00	14.42	4.54	4.76	7.70	14.56	63.57
(age range 8.6-9.6+ years)	%age of means	56.00	57.68	45.40	79.33	64.17	66.18	63.57
Whole sample of EMR(N-50)	Means	15.10	15.67	3.30	4.74	9.30	13.86	61.00
(age range 7-9.6+ years)	%age of means	60.40	62.68	33.00	79.00	77.50	63.00	61.00

From the table it is clear that in all the sub-tests the performance of the present sample (7-9.6+ years) was good better than that of Group I normal children (5-6 years).

In the sub-tests of metric relations, spatial relations, signs-symbols and belongingness, though the performance of group II (6-7 years) was better than that of present sample (7-9.6+ years), the difference is negligible. That means the mean performance of the present sample is almost equal to that of group II normal children.

In temporal relations the sample included in the present study showed significant difference.

In conservation, the mean performance of the sample of the present study was very much less than group II of normal children and slightly greater than that of group I of normal children. This implies that in the conservation items, the sample of the present study was very much lagging behind as compared to normal children of even 6-7 years old. The mean performance of educably mentally retarded in total CDST is almost equal to that of group II of normal children.

By comparing the percentage of mean performance of both groups of normal children and of the present sample one can notice that in all the subtests groups I and II children of the present sample had performed better than that of Group I normal children. The Group II of the present sample was more or less equal to that of II group of normal children in the performance of subtests.

In conservation items, the mean performance of I group of the present sample (7-8.6 years) was equal only to that of Group I (5-6) of the normal children. But even children of 8.6+ of the present sample (II group) was very much lagging behind than that of group children II (6-7 years) of normal children).

The hypothesis 4 was stated as "There is significant difference between means of the CDST scores of whole sample of EMR and normal children".

This hypothesis could not be verified with the help of 't' test of significance of difference between

means because the groups are not matched groups as far as age factor is considered. But from the present investigation it can be inferred that if both the samples, normal and handicapped, were of same age group there would be significant difference between means of the CDST scores of whole sample of EMR and normal children. It can also be inferred that handicapped children of age 8.6+ years are equal to normal children of age 6-7 years. Therefore, on the basis of these inferrences the hypothesis is retained.

d) Relationship between IQ and Cognitive Development

The Pearson's product moment correlation coefficient between CDST scores and CPM scores was found to be 0.38 (significant at 9.01 level) indicating that there is a high positive correlation between CDST scores and CPM scores. Thus it can be inferred that CPM scores are indicative of an individual's measured IQ and of cognitive development status. In other words, from the obtained coefficient of correlation it is understood that there is a high, direct relation between intelligence and cognitive development.

It is revealed from the present study that children belonging to grade V (CPM) were also capable of performing certain tasks which are indicative of attainment of concrete operational stage but at a later age, as compared to normal children. According to Inhelder's scheme of

classification of retarded individuals, the cognitive development of EMR will be arrested in concrete operational stage and it fails to progress beyond that stage. This investigation is restricted to the assessment of cognitive development of the EMR, and whether EMR will progress beyond concrete operational stage in later years is beyond the scope of this study. On the basis of the discussions made on the obtained results, hypothesis 5 that "there is significant relation between IQ (measured), and level of cognitive development" is retained.

To verify hypothesis 6 that "cognitive development is independent of socio-economic status of parents", interdependence of SES and CDST scores were found out by drawing contingency table and applying Chi-square test. X^2 was found to be equal to 4.18, which was not significant at 0.01 level or at 0.05 level, hence the hypothesis is retained. It indicates that cognitive development is more of innate ability and is little affected by socio-economic status of the parents.

Anyway, inferences drawn by the investigator might further be justified or rejected based on evidence of further research in the field. As the sample is a selective one, the investigator restricts her conclusions to the sample of the present study only.

Conclusions : From this investigation the following conclusions can be drawn :

(1) EMR children of age 8.6+ years are equal to normal children of 6-7 years in cognitive development.

(2) The items which are not performed by children of 7 to 8.6 years old will be performed by children of 8.6+ years old. Educably mentally retarded children are capable of performing certain items of CDST at later ages as compared to normal children.

(3) The EMR are able to perform tasks which are indicative of attainment of concrete operational stage at later ages compared to normal children.

(4) The EMR also have three different stages of conservation such as non-conservation, transition andservation. Attainment of each aspect of conservation is independent of attainment of the remaining aspects of conservation. There is no any rigid sequence in the attainment of conservation stage in different aspects.

(5) Individual differences can be noticed among EMR in difference between boys and girls in their mean performance is not significant.

(6) There is a high, direct relation between intelligence and cognitive development.

(7) Cognitive development is more of innate ability and is less affected by SES of parents.

(8) The cognitive development status test developed for normal children can be effectively utilized in assessing the cognitive development of EMR children also. Because of the older age of the

sample compared to normal children the test was easier to the sample except in case of conservation items.

Suggestions for further study :

(1) Study can be conducted to find out whether EMR will be able to perform all the tasks which confirm their attainment of concrete operational stage and also their further progress into formal operational stage.

(2) Study can be conducted to find out the exact relation between cognitive development and academic achievement.

(3) Efforts can be made in the direction of providing programmes to EMR which will facilitate their cognitive development.

(4) Efforts should be made to find out the suitable curricular activities which pay much attention to the positive aspects of EMR and making best use of those abilities.

(5) Studies should be conducted to analyse the impact of all the variables which have bearing on the slower rate of cognitive development among EMR.

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4.4.0 EXPOSURE TO READING READINESS TO EDUCABLE MENTALLY HANDICAPPED CHILDREN

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ABSTRACT

The paper focuses on a programme of reading-readiness for educable mentally handicapped children specifically preparing educable mentally handicapped children to begin reading in a special school; their IQ is taken to be between 50-75.

I have used the American Association of Mental Deficiency's definition "Mental retardation refers to significantly sub-average general intellectual functioning existing concurrently with deficits in adaptive behaviour and manifested during the developmental period".

The term "reading readiness" refers to the collection of integrated abilities and skills that the child needs in order to learn the complex process called "reading". The components for which the programme is suggested are as follows :

1. Functions - include visual discrimination, reception, association and memory.

2. Auditory Functions include auditory discrimination, reception, association and memory.

3. Speech and language development.

4. Physical and motor development.

Such a programme is felt to be essential before an educable mentally handicapped child can begin reading.

Though it requires a lot of patience, it is our duty to help these children to achieve as much as they can to enable them to adjust in day to day life.

Our education system is based on the assumption that all children are alike and that all learn at the same rate and by the same methods. In fact, children differ biologically, psychologically and socially. Individual children learn differently and at different rates. It is for this reason that not all eight year old children learn to read at IIIrd Standard level and not all children can master Ist Std. reading material at the age of six.

The major goal of education is to develop each child to his/her maximum potential; for a particular child, we donot know what that potential for reading is. Our objective, therefore, must be to provide every child with the widest possible opportunities and to remove, if possible, any conditions or factors inhibiting the child's ability to learn.

The children with any problems in learning are categorised and labelled, however, a description of the child's learning problems is necessary. The classification and labelling of children who develop at a slower than normal rate; has been the subject of much discussion. Mental Deficiency Classification System. "Mental retardation refers to significantly sub-average gereral intellectual functioning existing concurrently with deficits in adaptive behaviour and manifested during the developmental period".

Unfortunately, the problem of terminology for different grades of retardation has not been the same for the different groups interested in the mentally retarded.

Attempts have been made to obtain satisfactory terms because of the stigma associated with "mental retardation". The classification on IQ though loosely formulated and controversial, eliminates terms often found objectionable to children and the parents, however, it does not help the teachers. Kirk and Johnson IQ 0-25- Total Care.
IQ 25-50 - Trainable mentally handicapped.
IQ 50-75 - Educable mentally handicapped.

This classification implies certain educational attempts-little or none for those needing total care; readiness activities for the trainability implise improvements in the skills of self-care, socialization and economic usefulness under protective supervision. Educability implies the possibility of developing some degree of independent behaviour by careful training. This implicit goal-setting has been found by teachers to be quite useful, thus, accounting for the growing popularity of this classification in educational circles.

The programme for educable mentally handicapped is more inclusive and penetrating than that designed for the trainables. It is important to adjust to a varied developmental, corrective and therapeutic programme of activities appropriate to the child's specific needs. Thus, at the primary level, it seems important to concentrate on sensory and muscular improvement. At the elementary levels, the emphasis is on learning academic tools while in junior and high classes, vocational practice is stressed. The specific needs can be determined by case-study and follow-up procedures with continued revaluations over a period of time.

The focus of this paper is on teaching reading readiness to educable mentally handicapped children. One might wonder why is the teaching of reading to educable mentally handicapped children important ? It is apparent that in today's world failure to learn to read places severe social and business restrictions on the individual. While the inability to read or write was both common and accepted a few generations ago, in today's world a failure to do so. closes many avenues. An educable mentally handicapped child is afflected by several disabilities. It becomes our duty to minimize the impact of these disabilities as far as possible.

The characterstics of mentally-retarded provide cues for the procedures to be followed.

1. They show poor powers for generalizations; they have difficulty in applying to a new situation what has previously been learned. In other words, they have difficulty in cognitive skills and memory.
2. They have specific, concrete reaction; circumstances do not seem to be taken into account while deciding issues.
3. Mentally handicapped children are quite egocentric.
4. They have poor interration capacities. They are unable to fit parts into wholes.
5. Mentally handicapped children have difficulty in perceptual-motor or sensory-motor learning. They may have an awkward gait, be poor in motor activitieslike throwing or catching a ball; poor fine motor skills like buttoning or unbuttoning. They may be hyperactive and so cannot concentrate on the given taks.

6. They may exhibit difficulty in visual or auditory perception.
7. They have inadequate expressive or comprehensive language.
8. They have deficits in social skills, that is, lack of sensitivity to people and poor perception of social situations.
9. As a result of these handicaps and others which are inherent, they learn slowly, inefficiently.

These characteristics may form the basis for specific techniques of teaching mentally handicapped children, particularly the educable mentally handicapped. Whatever the programme that is designed, it is necessary that the teacher has realistic expectations. The expectation of achievement level depends on the child's mental age. Teachers and pupils will find it frustrating if the teacher spends a lot of time and effort in trying to get the pupils to achieve at their chronological age level. Realistic academic goals may be formulated as an honest interpretation of the child's abilities to his parents. The parents, too, need to adjust their expectations more to mental age than to chronological age.

In the context of the paper, teaching of reading assumes primary place; it is the basic tool for all other academic learning. Reading skills are needed throughout the life, whatever the child assumes as a vocation in adult life, be it a sheltered work-shop or something else. Preparing them for learning reading is in a way, preparing them for

future life. They will not be able to learn as a "normal" child in school but will be able to recognise and write alphabets, simple sentences. Reading will also prepare him for speaking by increasing his vocabulary and language.

Till recently, psychologists, social workers and other personnel involved with mentally retarded children concentrated on teaching them self-help skills. It was thought that they are not capable of learning the three R's- reading, writing and arithmatic. This concept is changing fast and is being replaced by an emphasis on teaching academic skills to educable mentally handicapped children. This broadens their limited world and also increases the opportunities for independence, however limited. They acquire a sense of achievement which adds to their self-confidence.

A person begins working with an educable mentally handicapped child keeping in mind his handicap and not having high expectations. A failure to do so will result in frustration; one must have and show confidence in the child's ability to learn which stimulates the process.

The term "readiness" refers to a state of development that is essential before a skill can be learned. For example, readiness for walking requires a certain level of development of the nervous system, adequate muscle strength and motor skills but until the infant has these abilities, attempts to teach walking will be premature and unsuccessful.

The term "reading readiness" refers to the collection of integrated abilities and skills that the child needs in order to learn the complex process called "reading". Research and observations suggest that many components contribute to reading readiness, the important ones being :

(a) Mental maturity
(b) Visual ability
(c) Auditory ability
(d) Speech and language development
(e) Thinking skills
(f) Physical fitness and motor development
(g) Social and emotional development
(h) Interest and motivation.

These factors comprise a systems network in that they interact and interrelate with each other; an educable mentally handicapped child is deficient in most of these aspects. However, the acquisition of a prerequisite skill does not assure that the child will learn to read, it means only that the child is better able to benefit from reading instructions.

Many educators believe that a minimum of 6-0 and 6-6 years of mental age is necessary for a child to learn to read. However, a child's mental age does not accurately determine the child's learning abilities. Learning can be influenced by materials and individualized help.

Thus, it seems logical that educable mentally handicapped children are prepared for learning reading. One has to be very careful and aware of the limitations

while chalking out a reading-readiness programme for these children. To develop a specialized programme, the following are essential :

1. The child's strengths and weaknesses should be evaluated to aid in programme-planning.
2. The instructional programme should be based on task analysis.
3. The programme should provide for success experience and aim at minimum change to ensure greater success.
4. It should be integrative. This implies that function like auditory discrimination is not trained in isolation but in relation to other functions like attention span meaning of words, etc.
5. The child's abilities should be used to train his disabilities if a child understands a picture but not the word, present the two simultaneously.
6. Abilities should be developed functionally, if a child has problems in visual discrimination, it is necessary to train him in discrimination of geometric figures and then alphabets. The activity should be transferable to life situation.
7. A teacher must determine objectives for a particular child and select the materials accordingly.
8. Multisensory approach should be used appropriately depending on the child's developmental stage and circumstances.

9. Feedback during teaching should be utilised. This implies three elements (a) what the teacher receives from the child in answer to a question (b) what the child receives from the teacher as a reaction to his response (c) what the child receives from his own body in terms of wocal on motor responses.
10. All activities should be presented gradually; the transition from simple to complex activities should be gradual.

There has been more effort, research and debate in the area of teaching reading than in any other area of school curriculum. The controversies about the best method of teaching still prevail, specially concerning the mentally handicapped children. Achievement tests, alongwith classroom observations indicate the level of teaching materials appropriate for the child.

Now, I will discuss the constituents and development of four aspects involved in reading readiness :

1. Visual functions
2. Auditory functions
3. Speech and language
4. Physical and motor development

I. Visual Functions

A number of educable mentally handicapped children, whose eyes are apparently normal, have disorders in the following :

1. This refers to the ability to visually discriminate likeness and differences in objects, geometric shapes, pictures, letters and words. To develop this, following can be done :

Select a series of animal pictures (e.g. 4 cats and 1 dog) and ask the child to circle the picture of the animal that is different. In addition to known objects, geometric designs may also be used to detect differences.

(b) Point out the likenesses and differences in objects in the class, e.g. table and chair, plant and animal, etc. Such a discussion facilitates language and memory for sentences and ideas.

(c) Collect objects and ask the children to sort them out

(d) Drawing activity to help visual discrimination

(e) Use peg-boards, blocks etc. to duplicate designs

2. Visual Reception

This refers to the ability to understand the significance of what one sees. The child may have difficulty in translating visual symbols into meaning or grasp the meaning of the picture.

(a) Recognition and differentiation of simple objects of different shapes, sizes, and colours. Begin with circle, triangle, square and then to more complex shapes like face, letters, etc.

(b) Organise field-trips to give the child knowledge and experience of which he may be deprived, being a handicapped child.

(c) Help the children observe and talk about what is seen through games like who can see most objects on the table or in the room.

2. Visual association

This refers to the child's ability to relate two or more things presented visually.

(a) Help the children verbalize and point out comparable parts of an object and its picture.

(b) Identification of opposite concepts presented in visual forms, beginning with trangible characteristics, like big-small.

(c) Simple jigsaw puzzles to fit parts in whole.

4. Visual Memory

In order to read, the child needs to remember what is seen-letters and words.

(a) Show the child a simple pattern. Remove it and ask him to draw from memory what he has seen. The complexity of the picture may be increased gradually.

(b) Show the child a picture and after removing it, ask him to describle the items in the picture.

(c) Memory games e.g. place many objects on the table. Let the child look at them and ask him to describe them.

(d) Develop memory by asking him about what he did at home, what he eat, where did he went, etc.

II. AUDITORY FUNCTIONS

Educable mentally handicapped children may show difficulty in this respect even though there may not be anything wrong with their central auditory functions.

1. Auditory discrimination

This refers to a difficulty in differentiating between similar sounds (doorbell and telephone ring) or similar words (pen and pin)

(a) Give a series of words that rhyme together with one odd one out which the child has to find - rat, cat, foot.

(b) Give a series of words with same initial sound and one different which the child has to find table, tail, ball.

(c) Identification of different sounds through tapes or words.

2. Auditory reaction

Difficulty here implies a difficulty in deriving meaning from spoken language and symbols.

(a) Recognition of simple sound - ring a bell and ask the child to raise his hand when he hears it.

(b) Use tangible reinforcements to motivate listening attitude.

3. Auditory association

An educable mentally handicapped child with a deficit in this area needs help in organising and interpreting ideas received through auditory channel.

(a) Two concepts related to each other - loud and soft and small.

(b) Since this is the beginning stage, one can ask him to form sets of objects.

4. Auditory memory

They may have difficulty remembering what is heard long enough to repeat it. Learning to talk depends on the child's ability to initate words and sentence in the environment.

(a) Tap on the desk and ask the child to repeat the rhythm

(b) Rhymes within their comprehension.

(c) Simple concepts may be taught - on, under, etc.

III. SPEECH AND LANGUAGE DEVELOPMENT

The speech of an educable mentally handicapped child may be delayed and he may have difficulty in comprehending simple words or instructions. Since speech and language are prerequisites for reading, these must be taught. The best way would be to assume that the biological structure of human being is essential for acquisition of language, but that it develops by imitation and reinforcement and that its complexity increases by stages at different periods of a child's life. Since these stages are delayed in a handicapped child, speech and language stimulation is imperative.

(a) Demonstrate what you want the child to do to ensure understanding and participation.

(b) Tell the child what he is doing to build up his vocabulary and knowledge.

(c) Give the child something to talk about and encourage him by showing enthusiasm. Pay attention to what he says and reflect back to him.

(d) Give the child a chance to talk, it requires patience to wait for the handicapped child to struggle to find the correct word, but do it all the same.

(e) Don't correct the child every time he makes an error this may discourage him.

(f) Physically and mentally get down to his level. Play what he wants to and encourage him to talk; repeat the activities he enjoys most.

(g) Be flexible, if your plan is not according to what the child wants, be spontaneous; learning material for language development are everywhere.

(h) Encourage the child to talk about what he did at home, what he ate, etc.

IV PHYSICAL FITNESS AND MOTOR DEVELOPMENT

Learning is an active process and requires the child to be alert, have energy and be able to concentrate. Medication may be necessary at times. Adequate motor development is a prerequisite of reading. An educable handicapped child shows difficulty in gross and fine motor skills.

(a) Games involving hand, finger and legs movements like dancing, exercises, etc.

(b) Outdoor games - running, hopping, walking on a line.

(c) Scribbling activities.

(d) Cutting and pasting, encourage the child to talk about what he sees in the picture.

All these activities suggested above must, preferably, be used in combination so as to develop reading readiness. An educable mentally handicapped child needs individual attention and an individualized programme. After a diagnosis has been made, a tentative programme may be worked out. After implementing it, evaluation of the performance must be done and modifications be made accordingly.

There are certain conditions that make the task of working with handicapped children very demanding. There are individual differences among them and an inherent doubt in the teacher's mind about their abilities. As the children move to increasingly abstract learning and functions, the limited ability of the retarded pupil to handle this learning becomes more obvious.

Medical knowledge about retardation is increasing. With this comes the need for more trained teachers and other specialists to work with them. The number of special schools in India, though small even now, is increasing fast with growing awareness. The task of working with these children may be demanding, but everyone has the responsibility of being sympathetic and understanding towards the people who are mentally handicapped through no fault of their own, public understanding, sympathy and interest in the handicapped offers a better future to these children. Seminars like this aid in arriving at a comprehensive view of the problem and discussion and solution to the problems one may face while working with handicapped children.

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5.0.0. Lead Paper

EDUCATION OF THE SPASTIC CHILD

B
y
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INTRODUCTION:

I must straightaway express my inability to cover this very wide topic with any justice to the space allotted to me. It will be seen that the handicap we are discussing always presents itself in a child in a complex and multiple form. Nearly every time it is a different combination of handicaps in different degrees of severity. Where the normal educator can afford to sometimes concentrate only on intellectual development the special educator can often start thinking of that aspect only after coping with the physical, sensory, social and emotional handicaps that many spastic children have. It would not have been possible to cover these other aspects in the length they deserve in a paper like this one. The emphasis is on intellectual development that will be found in this article is in a way rather arbitary. However, instead of covering every aspect of special education in a general manner one felt one should attempt to cover a few aspects in depth. Remedial methods have been touched upon very briefly. A few books have been recommended at the end for the interested reader. The philosophy behind the "right" curriculum is crucial in influencing the special education that the spastic child receives. The

final section is therefore on the aims of education.

WHAT IS A SPASTIC:

Spastic is a lay term for cerebral palsy. This is usually defined as a "disorder' of movement and posture resulting from a permanent non-progressive defect or lesion in the immature brain". There are four main types of physical handicaps namely spastic, athetoid, ataxic and a mixed type. This classification depends on the particular area of the brain that has been damaged, e.g. damage to the cortex appears to be the cause of spasticity while damage to the basal ganglia is perhaps the cause of athetosis. Different kinds of abnormal movement and posture characterise children suffering from these types of cerbral palsy. The ataxic child shows poor body balance, an unsteady gait and difficulties in hand-eye coordination. The athetoid is very different and shows frequent involuntary movements which clash and interfere with normal movements of the body. Writhing movements of the limbs, the face and the tongue, grimacing, dribbling and slurred speech commonly occur. The spastic child is charaterized by a marked rigidity of movement and an inability to relax the muscles.

These formal definitions and classifications tend to concentrate on the obvious features of the child's condition. The less obvious features such as the intellectual and emotional features may be the most important ones in understanding his needs and ways in which he may be helped. Further, it is the additional handicaps associated with cerebral palsy that crucially affect the

childs functioning. Brain damage not only affects the development of movement, but also in varying degrees, the development of intelligence, vision, hearing, speech and other functions important to a childs progress. Epilepsy occurs in about 30% of cerebral palsied children. 55% - 60% of all cerebral palsied children have visual defects of some type. Speech defects occur in 70%, hearing defects in 40% and about 45% have a mental handicap i.e. an I.Q. below 70. Mercifully not all have these handicaps in a severe degree. About two thirds are moderately or mildly handicapped but always there is a combination of handicaps which is very individual.

GENERAL LEARNING DIFFICULTIES

Experience Deprivation:

A syllabus planned for a normal child takes for granted a great deal of adequate and appropriate stimulation, and experiences which have helped him to develop mentally and physically. Many of the handicaps that a cerebral palsied child has have restricted his opportunities for acquiring critical experiences. Piaget has described how a baby must be able to combine what he sees, feels and hears and what he perceives and remembers. His later learning for example of reading and writing depends on much the same processes at a more advanced level. The mature adolescent phase of abstract, formal and logical thought is dependent on successful mastery of earlier stages. It is not surprising that many spastic children who have not had these earlier experiences run into difficulties

which become very apparent when they reach school. The educator must ensure that the spastic child has at least some of these critical experiences - if necessary bringing the environment to the child. It is a major task of parents, teachers, therapists to ensure that the natural exploratory drive and curiosity that most spastic babies are born with are not repressed. To see what actual help can be given with the physical difficulties that impede expression of this drive which is so crucial for intellectual development. Brereton and Sattler (1965) have excellent recommendations for the experiential and conceptual development of the multi-handicapped child. It is important however to remember not to over stimulate children with learning disabilities and to help them perceive and categorise in ways which will make experiences meaningful.

In a similar manner the spastic child may have inadequate opportunities for social relationships, for appropriate language stimulation and this deprivation must be compensated for through the curriculum.

Emotional barriers to learning

Gardner and Bowley (1957) point out how spastic children with the handicaps that have been described are sometimes quick to realize that their efforts do not match up to what their parents expect or to what other children accomplish, hence their self confidence and morale are likely to suffer, they become over anxious about failure, and give up so quickly that their learning

advances only at a very slow pace. Our experience is that such emotional barriers are often present. Behaviour modification techniques have been found very useful with spastic children at the centre for Special Education in Delhi. It must be pointed out however that we not not usually require contrived contingencies like sweets, points and stars. Indications of progress or approval by the teachers suffice. If contrived reinforces are considered necessary they are gradually eliminated. The teacher often finds it necessary to programme her instructions.

It is necessary to mention here how imperative it is to include creative expression through play, art, drama language, music in a curriculum for such children. A great deal of work has been done proving the therapeutic value of such activity and enabling specialists to analyse the creative work done by children. In our Centre in Delhi, Komal, a severely physically handicapped 10 year old spastic child of above average intelligence did a drawing or Diwali coloured entirely in black. This led to an enquiry by the teacher who wondered why such a colour, considered by therapists as very negative had been used. An essay was dictated by Komal. It emerged that a firework had landed on his foot a few years ago, his handicap did not allow him to remove his foot which was slightly burnt. Help came in a short while but the child has been petrified of Diwali ever since. Deeply rooted fears, inhibitions and frustrations can sometimes only be expressed creatively. A wise choice of themes by the teacher and encouragement to express freely, we find, works wonders.

SPECIAL LEARNING DISABILITIES:

Cerebral palsied children who have abnormal brain function must be considered to have complex handicaps when they are being assessed. In addition to the physical handicaps there is often some general or specific intellectual impairment; there may be perceptual disorders; there may be sensory handicaps and there may be speech and language disorders. Specific learning disabilities are responsible for the unevenness in the intellectual and educational performance of cerebral palsied and, ofcourse, other brain damaged children as well. Wedell (1960) using very carefully devised tests on 73 cerebral palsied children and 40 controls without brain damage showed the difficulty the former had in tests involving the matching of figures, copying patterns of bricks, assembling jig saws on which low scores were recorded on 24% of the brain damaged childfen compared to less than 3% of the controls. The tests were specially designed so that the child's motor control was not an important consideration. Abercrombie (1964) confirmed that there was a high incidence of perceptual disorders amongst cerebral palsied children in her extensive study of 99 cases and 11 controls using the Wechsler Scales, the Frostig Developmental Test of Visual Perception and various matching tasks, both through visual and tactile means. The degree to which the children and sensory or motor handicaps was carefully assessed so that the influence of these could be allowed for. 75% of the cases showed specific perceptual motor difficulties on one or more of the tests which could not be attributed

to motor or sensory handicaps; children with equal degrees of motor handicap, but who were not brain damaged (e.g. cases of poliomyelitic) did not show such difficulties.

However, sometimes, perceptuo-motor difficulties are not due to perceptual disorders themselves but its somewhere in the process of translating a perception into action. The work of Birch (1965) and others show that some children with neurological deficits have quite good visual perceptual skills (e.g. they can match picture to picture and shape to shape fairly normally) but cannot construct patterns either through making patterns with coloured bricks or attempting to draw them. In a similar manner when assessing difficulties in auditory perception, careful attention must be paid to differences between input and output, because, as Dehnson and Myklebust (1967) have pointed out, children with difficulties in understanding language present a different remedial problem from children whose output processes are affected, although speech resulting from both input and output handicaps may be impared.

By using specific techniques it is possible to educate more efficiently children who otherwise show such a severe learning disability in certain areas that overall they present as mentally subnormal and function as such in learning situations. Many highly specialised remedial programmes are available. The perceptual remedial programme developed by Mariane Frostig in her centre for educational therapy in Los Angeles is available in all the special schools for Spastic in India. The areas of visual perception postulated by Frostig, are figure ground perception

positions in space, perceptual constancy, spatial relations and eye-hand coordination, In the Teachers Guide there are many useful suggestions for three dimensional exercises which can procede and accompany the pencil and paper work sheets.

Kephart has suggested another approcah to the remediation of perceptual motor difficulties, i.e. through the motor base of achievement. A detailed plan for remediation is outlined in The Slow Learner in the Classroom. (Kephart, 1960) Apparatus such as walking boards and balancing boards are used for some of the motor training and the blakkboard also figures prominently. A detailed account of a very comprehensive remedial programme for children with a variety of disabilities in language, including both receptive and expressive aspects, disorders of reading, written language or arithmatic or non-verbal disorders of learning is given by Johnson and Myecklebust (1967). The educational implications of distractibility have been carefully studied by Cruickshank who has advocated radical educational measures such as setting up "distraction free" classrooms, which are relatively bare, silent, small cubicles providing a visually neutral background against which the work material could be thrown with relief.

Not a great deal of research has been done system - atically evaluating these different remedial methods. One problem is theethical one - it is difficult to establish a control group and deny handicapped children the special education they urgently need during the time of the trial.

There are a few studies of remedial methods. For example, Tyson (1963) studying the Frostig remedial method on a small group of cerebral palsied children and Horn (1970) studying non cerebral palsied children who showed perceptual motor difficulties found that such remedial work on the whole tended to produce slight improvements in terms of increased scores on the Frostig perceptual tests, but not necessarily in the educational attainments so far. Cruickshank's recommendations with regard to the education of distractible children have been challenged by the findings of Brown (1978). Brown's studies among 28 severely subnormal children attending a Junior Training Centre found no differences in the children's performance scores in their usually highly decorated nursery type classroom and their scores within a bar experimental environment, it "comes from within". However, one cannot help feeling that a distractible child can probably be helped a little by having an environment that does not contain too many diversions although his difficulties cannot necessarily be solved in this way.

Scientific studies of the long term results of such training programmes are not yet available, This is partly because of the tremendous complexity of these learning difficulties as well as the difficulty mentioned earlier with regard to controlled research. Perhaps a word of caution is advisable at this stage of our knowledge, One influential school of thought recommends, with regard to perceptual deficits, that the curriculum time could be better devoted to an all round multisensory reading readiness programme playing to the child's abilities

rather than his handicaps, we must remember that researchers have found such learning disabilities to be also present in the normal school going population and that many normal children have coped with these without special intervention. Our experience with teaching cerebral palsied children at the centre for Special Education in Delhi leads us to recommend discriminating use of programmes designed to remedy specific learning deficits, continuous assessment of the specific remedial programme that is being used and constant attempts to encourage the child to use his unimpaired learning abilities to compensate for those that are disabled.

SPEECH, LANGUAGE AND COMMUNICATION:

About 70% of children with cerebral palsy suffer from speech difficulties. In mild cases they present as a slurred and slow articulation, lacking the usual sentence rhythms, yet are quite intelligible if one concentrates on listening to it and becomes familiar with its rate and odd rhythm. In other cases the difficulty is so severe that they are unable to communicate through speech.

Many cerebral palsied children show relatively high development in certain intellectual areas but their language development is relatively low. Ranfrew (1972) claims that the large majority of cerebral palsied children seen by her during speech therapy sessions have impairments in understanding speech which are not caused by deafness. It is her opinion that in these cases children hear speech sounds and words and can often imitate them accurately but fail to perceive the meaning. A kind of special

learning disability that only a speech therapist is really equipped to deal with. However, many more have poor language development because of environmental factors. At every level of experience the cerebral palsied child is often handicapped. The great majority of young children remain at home day after day in the same room meeting only the family circle. They have few opportunities for showing initiative, developing independence or even just being naughty and having to the reproved. Consequently there is little to talk about and little to think about. It is no wonder that language is limited in vocabulary and information content. Many of them have such difficulty also with the mechanics of speaking that they say little and lack the experience of putting their thoughts into words. Normal language development depends particularly on "social imitation" and the desire to communicate through speech, both on the part of the child and the persons surrounding him.

Special advice and attention regarding communication difficulties such as in writing and speech is essential during the early years of the majority of cerebral palsied children. It is vital that parrents are alerted about the necessity for language stimulation in the early years. There are several ingenious communication systems that have been developed for children who are non verbal and/or have very poor hand function. For the non reader, picture and other simple symbol boards are used for communication. The Bliss symbol method allows the development and use of a 1000 or more word vocabulary word boards are used by readers. Rubbe stamps, different

kinds of typewriters, rotary pointers, electronic teaching machines which require only breath control (if that is all the remaining residual function) - these are some of the rnagee of hardware available to the special educator teaching a non verbal child with poor hand function. All these are available at the few special schools that exist for spastics in India and the cheaper aids, like rubber stamps are being developed and manufactured in India now.

PHYSICAL DEVELOPMENT AND INTERDISCIPLINARY MANAGEMENT

Every special school for children suffering from cerebral palsy has a theraphy department with physio, speech and occupational therapists. In the best schools there are few barriers between the departments and there is interdisciplinary management of the child. The occupational therapist combines perceptual training with useful hand function work. The teacher and physio therapist lead group movement sessions which have educational goals as well. The speech therapist carries out her theraphy using reading materials from the class and reinforcing the work done by the teacher. The special educator encourages children in class to correct abnormal posture so as to avoid secondary deformities. A spastic child has no more time at school than a normal child yet he has many more urgent needs for expert help and teaching. It is only with interdisciplinary management that these needs can be satisfied and teaching and learning time used optimally. Useful research is needed in developing interdisciplinary methods of teaching. The Peto method is of particular relevance to the treatment and education

of severely handicapped cerebral palsied children. This was developed in Budapest by Professor Peto. The training programme is a highly structured one and the day is carefully programmed. The aims are to promote general body control by intensive training in achieving the daily functional skills required by children. The programme has educational and language inputs, makes little use of aids and is carried out by a 'conductor' and her assistant in a particular area devoted to the programme. It is less fragmented and the highly trained conductor acts as physiotherapist, speech therapist, occupational therapist, teacher and nurse. Some of the principles behind this method are being implemented in our Centre with severely physically handicapped young spastics of normal intelligence and while there is no scientific evidence of it being a better method as yet than some other we are generally very pleased with the results.

While it is outside the scope of this paper to discuss different kinds of therapy for the spastic child, it is necessary to emphasize the importance of weaving into a syllabus the physical goals of the child. It is a spastic child's physical capabilities like hand function and speech very often which are crucial in determining his independance, his ability to make friends, the work opportunities available to him - in fact, the quality of his life. A special educator of cerebral palsied children is trained in the rationale behind the different therapies and treatment aims. Case conferences are held in special schools for spastics at least bi - annually to interweave

the different goals for each child.

EDUCATION OF SPASTIC CHILDREN WITH ASSOCIATED MAJOR HANDICAPS

It has been seen previously that a high percentage of children suffering from cerebral palsy have major associated handicaps like general mental retardation, visual handicaps and hearing loss. Sometimes these handicaps can be compensated for with aids like hearing aids, specially wired classrooms so that the partially deaf spastic child can hear all the sounds in the classroom area, special printed material for the partially sighted, special magnifying glasses etc.

When the associated major handicap is severe the teaching expertise required for a blind, deaf or mentally retarded child needs to be combined with the know how available in a special school for spastics. Fortunately, such cruel combinations of cerebral palsy and uniformly severe major handicaps are rare.

AIMS OF EDUCATION FOR THE SPASTIC CHILD.

For the not too severely handicapped the aims of education can be very similar to those that are advocated for ordinary children - a blend of aims, of self-fulfillment, of the development of potentialities, intellectual, physical, emotional, the aims of working towards a career and of service to the community. These various aims are not always completely compatible for ordinary children: for the handicapped even greater difficulties are apt to arise. The presence of a considerable handicap means that

achievements are bound to be low in certain areas. There are many questions and few confident answers. There are such few work opportunities for the handicapped, should an intelligent severely physically handicapped spastic in India concentrate on self-fulfilment aims such as his interest in art and informal reading or should he concentrate on academic work like Hindi and maths that may lead to examination successes. Should more curriculum time be spent on improving the child's motor skills through intensive training methods like the Peto method? As there are such few work opportunities for spastics, should we abandon the idea of working towards employment for gain - and concentrate on self-fulfilment activities? Or should organizations providing research for spastic create work opportunities and provide schooling services simultaneously? In the meantime we require the development of different educational strategies which will suit the financial constraints that exist in this country and which will be responsive to the differing social, and economic milieu's that spastic children live in.

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2.02.0 Lead Paper

Research in the Education of the Blind

By

Dr. A.K. Mittal

The N.C.E.R.T. needs to be commended for selecting the Education of the Disabled children as the general theme for its third All India Conference on Educational Research. Coming as it does in the current International Year of Disabled Persons this Conference, I have no doubt, would serve to bring into sharp focus the Research needs as also to evolve practical & feasible research techniques, which would, in turn, open up newer & more diversified vistas of Educational opportunitise for blind children & other categories of the handicapped.

Problems & Perspectives :

While discussing the vital role of research in the education of the blind, we would do well to clear the decks & consider the perspectives we would employ & the problems we encounter. Broad conceptualisations of research in the education of the blind must be concerned with problems which are new in educational research as conceived generally. These problems arise from two major sources; (a) Sources the very small & scattered population of blind children available for study & consequently, (b) The almost insignificsnt number of researchers who choose to work in this field.

Of the estimated 250,000 blind children in the country, only about 10,000 are believed to be in schools for the blind whose number is no more than about 225. The enrollment of children at these institutions ranges from about 200 to just 10 to 15. The number of childrem in a particular class & age group in a single school, is often too small to permit research, let alone encourage it.

Also, to date, there is no formal university-level programme to prepare research workers in the field. Doctoral work in the educational problems of the Blind is conspecious by its absence. All that it available in the name of research in the country is isolated & defused desertations by a few M.Ed. students & some projects sponsored by a couple of voluntary organisations & the Union Ministry for Social Welfare Not a single university offers degree course in the Education of the Blind & the number of Universities having such courses for all categories of the handicapped, under the title of "Special Education" is also almost negligible.

No less distressing is the fact that the importance of research in the field tends often to be undermined even described, in the face of what are supposed to be weighier matters demanding early solutions. And, then of course, there is the chronic problem of resource constraints.

GUIDELINES FOR RESEARCH:

An obvious out come of the problems indicated here is that research in our field cannot be other than severely limited. For this reason, it is critically essential that whatever research is undertaken, be planned to provide maximum returns for the efforts expanded. The following guiding principles are suggested to achieve this end :

1. Research should be problematic, in that problems should be persued to their solution. Where ever applicable, the solution should include a product & the necessary instructions for its use by the students, teachers or other workers.

2. Emphasis should be laid on action based applied research, instead of research for the sake of it. In undertaking & planning a research proposal, the sponsoring agencies or individuals must be convinced that their programmes would be of some tangible use for the blind child or his teacher & that they are able to draw upon other related disciplines for background information.

3. Every effort should be made to off set the effects of the smaller number of subjects available for study through use of precise experimental designs, at the same time concern for the preciseness the experimental design should not preclude seizing unique opportunities for study. In many instances, case studies carried out over a longer period of time, present the only opportunity for systematic investigation.

Goals & Outcomes :

With these basic principles in mind, we can now proceed to consider the special goals of research in the education of the blind. It is often stated that education of blind children is essentially identical to the education of all children. Certainly, the goals are the same. Why, then, do we talk of the need for a special research effort & the justification for this specialized attention lies in the fact that the perceptual development of blind children & the need for detailed analysis & description of their characteristic modes of perceptual behaviour are concerned with realms distint from those of other children. Another important goal here concerns educational technology where our concern should be with developing educational media & techniques best suited to enable the visually handicapped child to reach the common educational goals in the light of his particular perceptual development & perceptual behaviour.

Finally, research activity in the field should have for its purpose the development of precise indicators & predictors of academic success & the criteria to assess the degree to which outcomes of research in educational technology enable the child to meet curricular goals. Thus, educational research here concerns itself with educational media, educational techniques for the teaching-learning process & the means for assessing mastery of assigned tasks.

Specific areas of research :

With this background in mind, specific areas of needed research can be identified. The list of research areas of problems indicated here is not exhaustive, but is believed to represent the range of most important & pressing problems. These research areas include : cognitive development, communication skills, special curricular needs, school placement programmes & attitudinal aspects.

1. Cognition : This refers to the process by which the individual gains knowledge of or becomes aware of an object. It is within this realm that critical differences exist between the blind & the sighted child, which have such significant implications for education. The following problems merit special mention :

(a) Tectual perception : We still have very little idea of the process by which textures are tectually diserimi-nated. Such information is crucial, of course, for the design of maps & other tactual graphics. At the sametime, no reliable information exists regarding what factors determine figure- ground relationships in stimulus fields.

Are differences in surface textures significant, or, in other to be a figure, must the tactual form be higher than its surroundings? Can a tactual figure be depressed below the surface of the stimulus field? How is a total form synthesised out of a piece meal tactual inspection of its parts? How valid & complete is the perception? How do these factors vary with size & complexity of the stimulus field? These questions are yet to be authentically tackled.

No information is available describing the degree to which patterning occurs in perceptual organisation of tactual stimulus fields. Results of inspections of many tactual maps & charts in Braille Books & in other sources appear to indicate that the designers of such text books presume that such patterning takes place, but no emperical evidence exists to support this notion.

(b) Perception of space : How do the Blind develop their concepts of space? How accurately is space percieved? And what are the roles & limitations of various sensory channels in space perception?

Answers to these questions have implications for mobility instruction as well as for instructions in mathematics & other sciences.

(c) Visual perception : A large number of children falling within the category of being levally blind, still retain varying degrees of residual vision. Study is, therefore, needed of ways in which a visually handicapped child can make optimum use of his residual vision development of training techniques to encourage maximum use of residual vision is of vital significance.

(d) Concept Development : Visual deprivation results in a great reduction of direct and vicarious contact with the environment. As a consequence, the proportion of experiences that must be classified as abstract, is greatly increased for the blind. The significance of this factor for concept development has long been of interest. However, its implications for education are yet to be fully explored.

2. Communication through Education :

Educational communication is an area that is affected greatly by the perceptual differences between the visually handicapped and non-handicapped children. Rates of communication are much slower when tactual reading medium is employed. Greater emphasis is laid on aural communication is the education of the blind because of this limiting factor.

Many problems of research exist in this area, some of which are outlined below :

(a) Reading Readiness : In the pre-school years, the possibility of retarded cognitive development resulting from the inability of the visually handicapped child to contact varied aspects of him environment directly or otherwise, is further increased because of the ignorance of parents. Research and development can bear upon the readiness problem in several ways. First, development and evaluation of programmes to work with parents and/or children, prior to school-entry. These programmes could train parents to provide the blind child with a variety of experiences necessary to maximum cognitive development during these years.

Secondly, development and evaluation of materials and techniques for use in pre-school training sequences. While many toys etc. commonly available, should be suitable for use, special adaptations and instructions for their use may be required.

Thirdly, development or adaptations of tests and scales to measure different attainment levels.

(b) Braille Reading : For many years, educators have dwelt upon the differences between visual and tactual reading. Intensive exploration and identification of these differences as also their implications for education, is required.

(c) Curricula for teaching Braille Reading: It is necessary to design special learning materials and text-books for use as aids in teaching Braille to blind children on the basis of our existing knowledge of differences between print and Braille reading and the related perceptual aspects.

(d) Increasing Braille Reading Speeds : It is believed that the average reading speed of a blind child is about 80 to 90 words per minute. Intensive efforts to develop training methods for maximising reading speeds of Braille are, therefore, urgently needed. We have also the task of developing and evaluating measures to assess progress in the refinement of Braille-reading skills, as well as to help diagnose causes of defeciencies.

(e) Listening as a substitute for Reading : The very slow rates at which Braille is read, imposes a severe limitation on the child in gaining access to educational information. Use of recorded texts is, therefore, advocated

to enable the blind child to get easy access to the print word and study it faster. The shortage of books in Braille also makes learning through listening important in its own right. What we have to do is to identify precisely the grade-levels and curricular areas where listening could substitute or supplement Braille reading, as also to determine the relationships of such factors as chronological age, intelligence and motivational aspects. It is also worthwhile to examine carefully the feasibility and advisability of introducing our blind children to methods of reading through listening at accelerated rates, an experiment already tried out overseas. The implications of factors such as levels of grade, age, course-contents and intelligence, for learning through listening to speeded word-rates need exploration.

3. Curricular Needs :

Perhaps, the most vital role research has to play is the education of the blind, concerns meeting adequately the special curricular needs of blind children and we would, therefore, discuss this aspect in some detail.

It is, indeed, pathetic that some subject areas or sections thereof are still considered beyond the reach of blind children. For example, we have, so far, been able to pay very scant attention to mathematics as a full-fledged subject is our schools for the blind. Four aspects of this important subject area needing close and early investigation, are :

Developing suitable materials to give number concepts to blind children; devising ways and means to facilitate the adoption of Modern Mathematics in our schools; developing concrete materials for teaching complicated Mathematical concepts and techniques for use of these materials; designing tactual drawings, graphs and charts for use in this area. Of no less significance is the need for reliable investigations to devise and standardise a Mathematical Braille Code to ensure uniformity in symbols used in Braille text-books on the subject.

It is tragic that in this age of science, the blind child is denied the opportunity of studying Science through regular laboratory methods. There is, thus an urgent need today, for research in the area with the object of developing appropriate Science experiments and demonstrations, which blind students could perform independently or with minimum of sighted help. This development should be closely related to modern Science curricula. Its primary goal should be to express Science concepts through the display of natural phenomenon withih the ranges of sensory capabilities available to the blind. For this purpose, it is essential that we impress upon our scientists and engineers the urgency for developing suitable instrumentation and gauging devices, so that the blind child is enabled to partake of the thrills and excitement of carrying out practical work in Science.

One of the greatest losses of blindness is that it severely restricts the individual's ability to get about.

Both mental orientation and physical locomotion, two of the essential ingredients of efficient mobility, could be seriously jeopardised. Training in orientation and mobility has, therefore, to be an integral part of the curriculum in schools for the blind. In our country, a great deal of practical research is needed to make training in this vital area a success. What kind of activities should be planned to adequately orient the blind child to his environment? When should the child have his first lessons in foot-travel with the help of a white cane? What role do secondary sensory abilities such as those of kinesthesis and vestibular sensibility play in aiding independent mobility and how to ensure their optimum development? How can we best help the blind child in developing the sub-abilities of sound-identification, sound-localisation, sound-allighment and tactual perception of terrains and ground levels? These and other issues relating to the proper manufacture of dependable canes need to be examined in depth. At the same time, we must also explore the possibility of devising suitable Ultra-Sonic devices in the field of mobility for the blind.

Another special area of equal importance for effective education of blind children relates to imparting them training, at an early stage, in the various skills of daily living which, in the absence of visual imitation, would remain outside the reach of the blind child, unless adequate training programmes are introduced at the right time. Here also, research, practical research, can help to answer some vital questions which are of marked relevance in a situation like

ours. What should be the principles and criteria for selecting and grading activities for inclusion in this programme? What special learning materials are required and what teaching techniques are needed? What are the effects of parental overprotectiveness or open rejection on the child's learning abilities in general and his potential to acquire independent life-skills, in particular? These and many other connected aspects need systematic inquiry.

However, as in the case of the non-handicapped child, education would be purposeless and stunted, if it is not suitably blended into a carefully designed programme of vocational training. Research has an indispensable role to play in vocationalising the education of the blind. The local work-a-day world has to be studied to suggest vocational areas for training in schools for the blind. Wherever desirable, adequate materials and accompanying training techniques have to be developed to fill in the gaps. Different facts of the Socially Useful and Productive Work, recently introduced in schools by the Central Board of Secondary Education, must be carefully studied to select suitable areas for blind children and draw up a phased programme of activities as a part of training.

4. School-Placement for the Blind :

Two widely differing plans for the education of blind children, are currently the subject of considerable debate and, even, controversy. On the one hand, there are special residential schools for the blind, sometimes called "Segregated schools" and, on the other side, there is the

integrated system of education for the blind, wherein the visually handicapped child receives education in a regular school alongside his sighted peers. In view of the low costs and the built-in potential for mainstreaming the blind child from very early on, the integrated plan is being widely recommended by the Government. However, in a country like ours where parental attitudes towards the blind child are found to be mostly negative and where social prejudice is presently too strongly embedded to allow free and equal participation in the activities of the community and the regular school, the success and efficacy of this educational programme needs to be objectively assessed. We have to have research-based recommendations about the relative roles of the traditional residential school programme and the integrated scheme with a dependable and practical list of remedial measures to plug in the loopholes in each of these systems.

5. Attitudinal Aspects :

All our programmes for comprehensive education and effective rehabilitation of the blind would be of little avail, if they are not simultaneously accompanied by compaigns of attitude-modification. For, as Hector Chevigny, an outstanding blind person, has remarked. "The tragedy of blind-ness does not inhere in the condition. The world in which the blind man finds himself creates the tragedy for him and in him".

It is absolutely imparative that research be initiated to analyse the attitudes of the parents of blind children, the school and college-level sighted students, the community

at large including prospective employers and, of no less significance, the blind themselves.

The Role of Government and Voluntary Agencies in Promoting Research

It is obvious from the above comprehensive list of areas requiring early investigation that no signal agency or even discipline can do much on its own. Research is basically a cooperative activity. A large number of people must lend in a hand to develop new gadgets or educational techniques and materials. Research, to be really meaningful in our field, has to borrow from a number of disciplines, blend this knowledge into a cohesive field whose principal purpose is to help a handicapped person towards better life and continually refine investigative techniques.

It is, indeed, heartening to note that the Government of India is alive to the need for promoting useful research in work for the blind. It convened in 1978 a National Seminar on Research in the Rehabilitation of the Disabled in New Delhi. The Seminar was attended by about fifty experts from various parts of the country representing different disciplines. It suggested an action-plan envisages the setting up of centres where new aids could be developed for the blind as also to carry out occupational research which might throw open new vistas of economic opportunity for the blind and suggest mechanisms for monitoring, evaluating and coordinating research efforts in the country. It is to be hoped that the recommendations of the seminar would receive Government approval early.

The recently established National Institute for the Visually Handicapped in Dehra Dun, under the Union Ministry of Social Welfare, has, among its primary objective, the promotion and diversification of research in related areas. The Ministry also provides liberal funding facilities to voluntary agencies having worthwhile research projects.

But state action, however effective, cannot be the sole motive force in sparking off the impulse of the scientific community and research workers to genuine and sustained dedication. The interest of the scientists, social scientists, engineers and others in this challenging field must be aroused and they should be convinced of the social usefulness of their endeavour. State as well as voluntary organisations working in the field have, therefore, to assume the role of crusading catalysts and tinder-box from which emanates an inexhaustible claim to kindle the interest of researchers from a wide spectrum of disciplines, to keep it alive till a crescendo of enthusiasm bursts forth into a rich harvest of devices, gadgets, techniques, materials and strategies. The voluntary agencies should also take the lead in gaining useful insights into various aspects of the education of the blind through carefully designed and coordinated research work.

Thus, research is, indeed, essential, may, crucial, in devising and developing meaningful techniques and technologies for the education of the blind. What is needed is interested and enlightened research workers capable of completing the project successfully within the stipulated

time, and alert and sensitive educators and school administrators capable of implementing the research outcomes before their relevance is outmoded in this age of the explosion of knowledge.

Let the current International Year of Disabled Persons be the harbinger of improved, refined and diversified educational media, materials and techniques, so that the blind child might, in reality, be able to enjoy the fruits of "Equality and full participation", the theme for the I.Y.D.P. Research and systematic inquiry hold the key to opening out new and widening educational horizons for the blind.

4.01.0 Lead Paper

MENTAL HANDICAP : AN OVERVIEW, WITH SPECIAL REFERENCE TO RESEARCH IN EDUCATION OF THE MENTALLY HANDICAPPED

by

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Education and training of the mentally handicapped is the most important part of the entire programme of services for their care, management and habilitation. Diagnosis, prognosis, medical advice and treatment, etc., are all important, and should be a regular part of services offered to the handicapped. However, without education, these will only serve to prolong a vegetative or subpar existence, where the quality of life is much below that which is optimally possible. Not only do the mentally handicapped suffer by the deprivation of the highest faculty a human being possesses, but also, the treatment they receive from society is much that it increases their disability, leaving them functioning at a far lower level than they are capable of. The ridicule and aversion or frank cruelty of many so called "normal" persons helps to make psychological wrecks of the mentally handicapped. While we are considering special educational methods for the handicapped, we should not forget that education of the community in the understanding of handicap is also important. This is a generally

poorly understood condition, not limited to the poor and the uneducated. I have met senior government officials, educated persons moving in the most elite circles, and even social workers, who have asked me questions such as, "Is there any point in doing anything for the retarded? They can't enjoy anything anway, can they?" or "Such children are mad, aren't they?". It is essential that people understand what handicap is, before they can be expected to change their attitudes towards the handicapped, or to give any meaningful help to them. The aim of all education is to increase the quality of life, and to help a child to become an independent, optimally functioning, responsible and contributing member of society. This includes the development of creativity and initiative, the learning of new skills and the improvement of old ones. As a child learns and develops skills, he also develops self-confidence and a better self image - an image that is usually pretty badly battered in the mentally handicapped. Not only is increasing independance important, but also the enjoyment of life and of learning, which should be the birthright of all, whether handicapped or not.

To fulfil such an aim, we need teachers trained in modern educational methods, who are responsive to their pupil's educational needs. This needs a high calibre of teacher, and also enough teachers to be able to give individual attention to each pupil. The mentally handicapped, even more than those of normal intelligence, need such individual attention. Without it, their educational achievement will be much below their potential capability.

India is considered a poor country, and this is the reason or excuse we give for paying the majority of our school teachers a pittance. Even the miserable amount they get is often held up because of some red tape or the other. In addition, because we keep our teachers poverty stricken, society looks down on them, which further decreases the readiness of a child to benefit from whatever education he is exposed to. Because of all this, we have very few persons who are willing to take up teaching as a career. It is only either the very highly motivated, or those who cannot get any other kind of livelihood who will settle for teaching - mostly the latter. This is hardly the kind of situation in which we can discuss newer educational research.

The situation is even worse where teachers of the mentally handicapped are concerned. In some schools, they are not even paid on par with teachers of children of normal intelligence. Only in very rare instances are they paid more. Yet their work is much harder, and they do not get as much feed back as a teacher of normal children gets, in the way of watching a student showing fast improvement. They also need to know and apply modern methods of special education for the handicapped.

However, happily conditions are not quite as black in many of our urban areas, where the importance of education and of those who are responsible for developing it, is realised. We do have schools, though not many, where education is of a high standard. But we need urgently to reform the pay structure of those responsible for the education of our children, and especially of teachers of the mentally handicapped.

Not only is adequate pay needed, but even more important, the training of teachers. Hardly any places are available in India, outside two or three centres, where a teacher can become adequately trained in modern methods of special education. This area has been ignored by our educationists for too long. I am glad N.C.E.R.T. has decided to take up this area of work in addition to the very good work it is already doing. A well designed, one or two year, postgraduate course in special education, recognised by the university, with provision for immediate employment of its alumnii on satisfactory completion of the course, is sorely needed. Immediate absorption into suitable employment is essential to prevent brain drain to the affluent developed countries - a luxury we cannot afford. And yet we allow many of our gifted, trained personnel no employment, and no facilities, with the result that they finally emigrate - after which we throw up our hands in holy horror and cry "Money mad"!

A number of questions arise when we consider the topic of research.

Is there any need or scope for research in educational methods in India? Are we not too poor a country to indulge in such a luxury? Can we not simply apply the research that has been done in other countries?

I think the answer to these in both yes and no. We must apply whatever we can of basic research done elsewhere, as long as it suits Indian conditions. In this category come the learning process, effectivity of early

intervention programmes, many of the techniques of behaviour modification, the principles of structuring the educational programme and sequential learning of tasks, and many other principles and techniques of learning. The details of techniques will obviously vary with local conditions and cultures, expectations from the individual in relation to society, etc.,.

However, there are many problems - medical, educational and sociological - which are peculiar to India, and **must** be solved by us, ourselves. One of the most important areas of applied research is evaluation of all on-going service or educational programmes. This is a must for any programme - ongoing evaluation of its efficacy. In the field of education, the following projects could yield valuable information :

- Evaluation of the effect of different types of educational and intervention programmes on functional adequacy, speed of progress, or any other parameter, which could lend itself to a testing procedure.
- Study of formal as compared to non-formal education.
- Study of results of teaching by educationists alone, or in conjunction with village or local craftmen and artisans.
- Study of different types and methods of vocational training.
- Studies on the outcome of education in different types of schools : integrated, day school, or residential.

- Studies on the effect of different types of integrated activities, such as dramas, pen friendships, working on different types of projects together, for children of normal and of sub-normal intellect.
- Standardization and adaptation of tests of intelligence and functional ability in the Indian population.

Social studies which may be valuable are :

- Study of the effects of different social conditions onfunctional adequacy - such as rural versus urban, joint family versus nuclear family conditions, homes with both parents working outside the home versus those with one parent at home, and so on.
- Study of productivity in industry of the mentally handicapped, compared to those of higher intelligence. (This could also guide the choice of work for such individuals).
- Study of adequacy in marriage of those who are mildly mentally handicapped or of borderline intelligence, compared to those better endowed.

Quite a few problems are already being worked on. Many intelligence tests have been devised which are suitable for Indian conditions. Educational and behavioural research is also being undertaken. But much still needs to be done. The field is wide open.

However, basic requirements of research are proper standardisation of methodology and clear criteria to be defined, before a study is actually undertaken. The whole research team must receive adequate training in research

methodology before a project is started. Standardisation of all tools and statistical evaluation of all results is a must. Unless this is meticulously done, research has no meaning. We see examples of "anecdotal research" all the time - high praise of some form of therapy or educational technique which may have been given, with some improvement noticed in a group of children, large or small. However, to call this research, and to state on the basis of it, that a particular form of therapy is better than another, it is necessary to take an exactly comparable group of children with all variables exactly matching the first group and to subject them to the alternative therapy, testing them by some rigid criteria, not just teacher or parent impressions. If impressions are to be relied on, a blind or double blind technique is necessary where neither the subject nor the assessor knows which type of treatment is being given. In the case of educational techniques, this will be more difficult than in drug trials. The cross-over technique, commonly used in medicine, would also be difficult to use in educational systems. In this technique a group of children taking drug A for say 3 months, will be assessed at the end of that time, and then be switched to drug B for another 3 months, being assessed after that time again. At the same time, an exactly comparable group of children will get drug B for the first 3 months, and switch to drug A later. Neither the assessors nor the patient will know what drug is being given. Assessment of the effects of drug A versus drug B will be by clear, previously decided criteria.

Results of the trial would be subjected to statistical evaluation for significance. Only after the assessment is done, is the code broken to allow the assessors or the subjects to know which drug was A and which was B.

Without rigidly adhered to methodology and statistical evaluation of all results, glowing accounts of some treatment or method can only serve as pointers, but cannot be taken as any proof of efficacy. In medicine, we see all the time the occasional child who is given up as lost. For example, a child who, after tuberculous meningitis, is discharged from the hospital in a near-vegetative state, of course, on continuing therapy with antituberculous drugs, will sometimes return after a few months, practically normal. This is improvement for beyond the usual. However, if this same child had had some religious or other type of intervention in the meantime, his improvement would have been attributed to the that intervention, rather than to just the antituberculous medications. For validity, statistical proof is needed. An adequate number or percentage of persons must respond to the new therapy for which claims are being made, and this improvement must be significantly better than the improvement with anti-tuberculous drugs alone, before any valid claims can be made for its efficacy.

Finally, all research must be ethical, and be directly for the benefit of the mentally handicapped, not for their exploitation. The handicapped are as human as anyone else, not laboratory animals.

In India, we have a country which, with all its disadvantages, has a great many advantages too, and these can be supportive to the mentally handicapped as well as to those who are not. We have much closer family ties than is customary in the west. This makes for a greater feeling of security. Life is under less stress and has a slower pace, here. We are able to relax with our friends and chat to people. Anxieties and stresses can be talked about and there are many willing listeners - and no dearth of advice! In the west, people are, by and large, without any such outlet, and have to pay fabulous sums to a psychiatrist to listen to them ventilating their grievances. The joint family system, with all its faults, did provide continuity of loving care and security for the children inthe family, even if the parents were absent. Perhaps the care was not too loving where girls were concerned, while the boys were spoilt - but that is another issues. However, even though the joint family is on its way out, even our nuclear families are much more stable than families in the west. Such a social structure does have a great deal to do with the feeling as well as the fact of security. Indian society, again, is far more accepting than societies in the west. Calamities are taken as coming from destiny or God - so are all types of children, including the handicapped and are accepted as such.

This is alright as far as it goes. But more is needed. The community needs to be educated on how to help the handicapped to develop their faculties to the maximum. Not only formal but non-formal education can be given, whether in the school, or the home, or elsewhere in their own locality, perhaps from local or village workers in different trades, preferably in some activity which will make them even partially independent. Such educational experiments are needed here.

With our huge population of over 600 million persons, of which 2 to 3 percent or 12 to 18 million are expected to be mentally handicapped, and 4 per 1000 or 2.4 million severely so, we cannot possibly provide enough special schools for them - or special teachers. The only way to provide education to such numbers is to integrate them into normal schools. The Integrated Education Scheme of the Central Government, has unfortunately hardly been given any publicity. It needs to be taken up by a great many schools. Again, evaluation of such integrated teaching is very necessary operational research.

Even if integration of education were to be widely implemented, we still need to orient and educate the community. Parents should also be given the opportunity to become familiar with modern educational techniques, as they are responsible for continuity of the child's education if he can go to school, and often for this total education, if he cannot. Parents educational-cum-counselling sessions need to be started in large numbers. They are almost non-existent in India at present.

Educational and counselling sessions for parents should stress fundamental principles of education and management of the mentally handicpped such as:

- Education and training should be geared to making the mentally handicapped economically independent, as for as possible, and as early as possible.
- Behaviour modification and conditioning techniques.
- Structuring of educational programme.
- Sequential purposeful teaching. Each step to be repeated as often as necessary till completely learnt, and going on to the next step till a whole skill is mastered.
- Small realistic goals to be set, with much praise and appreciation shown on completion of small tasks, and minimal criticism.
- Occupation to be purposive, not merely to keep a child busy and out of the way.
- No favouritism should be shown among the siblings in a family. Treatment should be impartial.
- Discipline, as well as love and warmth in the home, is essential. Discipline should be consistent and not irregular and erratic. A child must learn to live in society, whether he is handicapped or not. An undisciplined child will not be tolerated by the community.
- Handicapped children should be exposed to the environment just as much as normal children. A child who is hidden away will not be able to learn, and will deteriorate further.
- A handicapped child should not be abused and insulted

with terms such as "fool, mad, idiot, imbecicle". All children, whether handicapped or not, have feelings, and can easily be hurt. Such treatment, besides being hurtful, will also decrease their effective functioning, by making them hostile or withdrawn, and resistant to education.

- A child should be allowed as much independence as is consistent with his safety. He should certainly be allowed choice in matters such as preferences in dress, foods, and activities, as long as there is not too much inconvenience caused to the family. He should also be given increasing responsibility, in the effort to help him towards independence.
- Types of institutions. The adverse effect of residential institutes should be explained.
- Early home stimulation programmes.
- The significance of tests of intelligence.

In addition, individual counselling should be given regarding each child. His whole condition should be fully discussed, stressing his capabilities and potential, not only his disabilities. Such sessions need to be repeated on a regular basis.

With the final aim of independence, vocational training in a variety of trades which are monetarily rewarding, rather than art work along, is needed. So are sheltered workshops and farms, reservation of jobs of the type that the mentally handicapped can do, and contracts for industrial piece goods. Research is needed in evaluation of different types of work and of training, to guide choice of these. At present, vocational training is, by and large,

stereotyped, unimaginative and uninteresting. There is much room for improvement.

Finally, I would like to say a few words on the very important aspect of prevention of this condition. As a result of research here and abroad, we know many of the factors responsible for mental handicap. What is needed is extensive campaigning in education of the community regarding preventible causes of handicap: prevention of consanguinous marriages, adequate supervision of deliveries and adequate antenatal and early postnatal care, early immunization against disease and early treatment of disease, prevention of accidents in the home and on the roads, and prevention of institutionalisation of infants and children to preven them becoming even more handicapped than they originally may have been.

The handicapped can be helped to lead much fuller, happier and more useful lives than most of them do at present, through modern educational techniques. But there is always room for improvement - for better and more effective methods. It is a wide open field for research.

4.03.0 EDUCATION OF THE MENTALLY RETARDED

BY

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INTRODUCTION:

Education of the mentally retarded was not a matter of much interest any where in the world until the early 19th Century. It was a landmark in history of education when Jean Mark Itard undertook to educate Victor, the Wild Boy of Averon in 1801. He tried to give sense training to Victor alongwith the emphasis on the establishment of social, communications and problem-solving skills. But when Itard's attempt to teach this Wild boy was not fully realised, an era of pessimism concerning the mentally retarded inevitably followed. However, in the early 19th century itself Edward Seguin, one of the students of Itard, followed his lead in the prospect of training the mentally retarded. Seguin, in fact, devoted his entire life to develop procedures for working with the mentally retarded within an educational framework. Marie Montessori elaborated on the work of Itard and Seguin in the late 19th Century by developing a programme of activities requiring utilization of all senses.

Since the days of Itard and Seguin almost every country has been actively involved in its attempt to cope with the problem of the mentally retarded including their education, training and rehabilitation in the community.

The concern for the retarded has now become a phenomenon in all civilised nations, and with the industrialisation of the society the necessity of the education and training of the retarded has increased manifold.

Education of the retarded must be understood in its broadest possible context. Education does not limit itself to only academic or more textbook learning; rather it is more concerned with the all-round development of an individual. The problems of the retarded are varied. Not only they have limited intellectual and learning capacity which makes it all the more difficult for them the handling of symbols in relation to reading, writing and arithmetic, but they are also incapable of having mature social and emotional relationships with peer group or others. He has poor self concepts and lack of self confidence in solving problems or getting alongwith others.

Principle of Normalisation:

An optimistic developmental model of mental retardation views that the retarded is capable of growth, development and learning. The aim of giving education to him would be to help him to develop as a person so that he can manage his own daily personal affairs and regular work and can get a job according to his potentialities, though his psychological abilities dealing with analysis, synthesis, reasoning, recognition, language communication or numerical treatment may never reach the desired level. The aim of education should be considered in relation to the

Integrated Education:

The concept of integrated education is an off-shoot directly emerging from the principle of normalisation. Historically, facilities for mentally retarded were always considered separately from the regular school patterns. However, the recent trend seems to be in the opposite direction.

All types of provisions for services to the handicapped have passed through certain stages of development. Kari Grunewald (1980) has identified such stages of which the first one is the diagnostic stage where diagnoses are made and plans are formulated to meet particular needs. The second stage is that of specialisation where particular needs are met by special solutions specific for those needs. The third one is called the stage of differentiation in which stage it is realized that a particular service cannot be standardized for all recipients. The relevant factors in this respect could be different age groups, degree of retardation and the like. The final stage is a composite one characterised first by decentralization of services, then provision for integration of services to the retarded with those similar services available to the non-handicapped in the community.

The integrated education asks for special classes or schools within the grounds or on the premises of the regular schools with the idea that special education be integrated into general education as fully as possible.

characteristics of the individual concerned. Even the most severely or profoundly retarded is assumed to have some capacity for developing progressively higher levels of skill. This optimistic view point suggests that education and training must be provided to the retarded to promote teaching and development.

The principle of normalization, an outstanding strategy has presently been recognised by all as one of the aims of education. While referring to the principle of normalization Grunewald (1969) states that, "The term implies..... a striving in various ways towards what is normal.....normalization does not imply and denial of the retardate's handicap. It involves rather exploiting his other mental and physical capacities so that his handicap become less pronounced.....". Normalization entails "making available to the mentally retarded patterns and conditions of everyday life which are as close as possible to the norms and patterns of the main stream of society" (Nirje, 1969, p. 181). Normalization (thus) is a process that employs as culturally normal means as possible to bring about as normal functioning by the retarded person as possible" (Neisworth & Smith, 1978, P.87). The normalization principles basically involve the principle of humanization. It refers to the services, situations and attitudes which will bring about humane care of the retarded (Dybwad, 1973). It thus implies that the society provides a place for mentally normalisation, therefore, demands availability of services with equal access for retarded citizens so that they can have as normal circumstances and as least restrictive environments as possible.

From the parents point of view, integrated schooling appears to be less stigmatizing. This will also extend an opportunity for the non-retarded children to have some interaction with the handicapped children. Ordinarily prejudice, less compromising attitude, bias and ignorance prevail in most situations discouraging any close relationships between the two. However, under integrated education scheme, the children as well as teachers would become exposed to the retarded which would help them to develop an understanding and tolerance for them.

Till recently education for retarded children in most countries did not form a recognised component of the national or any state plan of the Education Ministry. However, situations are chaning fast and more and more countries are favouring an educational scheme which recognized that exceptional children need to be integrated with so-called normal children in schools in such activities as games, physical education, school assembly, recreation, and hobby activities. They, however, need to be taken out of the regular class for remedial treatment where there is less class pressure and where individual's need can be catered better. In Indonesia, in some rural areas the education of the handicapped children which included the blind, the deaf and the retarded has been integrated with regular schools. Here the special need of the handicapped children is met in part by visiting specially trained teachers who at regular intervals do the suppervisory work to be followed by the regular teacher. The regular teacher thus needs to follow the progress of the child jointly with

the special education teacher by reinforcing the remedial treatment in his class. Adequate use of programmed instructions and instructional games are imperative in this respect.

Government of India has also recommended integration of schools which involves taking in mentally handicapped children in regular schools for normal children, where they would take part in all activities and classes in which they are at par with the other children. It has been recommended that special "resource" teachers and special "resource" classrooms for the handicapped where they can be separately taught in class room subjects in which they cannot participate equally with other normal children.

One of the major objectives of providing a normalized setting for mentally retarded is that they must be maintreamed in the least restrictive environment possible. In the U.S. the concept of integration has been embodied in federal lagislation in 1975 which is deemed to be implented by PL.94-142 - Education for All Handicapped Children Act. The basic intention of this law is to prevent an individual from being stimatized through classification and labelling. The public schools (Govt. Schools) have been entrusted with the education and training to provide appropriate, individually desigined, instructional programmes for all children, including moderately retarded, to the maximum extent possible. More and more emphasis is now being given on the provision of instructional programmes for mildly retarded school-age children. This has replaced earlier emphasis on provision of special education programme for the severely and profundly retarded.

The issue of integration, however, has its usual difficulties as well. For instance, it has often been pointed out that the attitudes of the so-called normal children towards their retarded peers might not be congenial which might lead to rejection or even bullying. Prof. Miki (1980) has also expressed his doubts about the success of integration programme in the field of education for the mentally retarded. According to him the characteristics of the aims and contents for the education for the mentally retarded has been slighted. He argues that the curriculum for the mentally retarded must be made which is conducive to the saving of the limited mental energy of the retarded and the main emphasis would be on teaching minimum essential contents and training an individual according to his abilities which would help him in developing as a person and to get a job in the future. In a recent empirical study, Nalwa and Sen (1979), in fact found that instead of mainstreaming of the retarded, the special schools in a non-institutionalized setting were most beneficial for the retarded. In any case, the integration of retarded children into the regular schools is highly unlikely to be so complete as to include all the severely and profoundly retarded.

Nature of Education and Training:

The usual curriculum provided to mildly and moderately retarded would not be suited to those youngsters with profound or severe retardation who most often need assistance in such basic skills as sitting up, chewing, swallowing or going to the toilet. These developmental areas are of special concern of the special educators who are to decide on type of

curriculum needed, how such curriculum could best be delivered and what would be the facilitating environment most congenial to their need and development of quick training programme for the teachers who would be entrusted with the job of training the children.

However, among the retarded population, only 5% is assumed to be beyond any hope who need custodial care. Nevertheless, India being the second most populous country in the world, its proportionate share of severely & profoundly retarded becomes increasingly alarming. The nature of care and training required for different categories of the retarded, is not the same. The problem is much deep rooted. Even the concept of retardation is not clear to many. The legal provision for the protection of the retarded is far from being satisfactory. The attitude of the public towards the retarded is lamentably unfavourable. The literacy rate is very low in India. Around 80% of the population in India are rural habitants. Many families do not even recognise the presence of a retarded child, unless the problem is a severe one when they try to look for some help from outside agencies. The number of such service agencies is also not large enough to cater to the bulk of the retarded. The existing services for the mentally retarded in India cater for less than one percent of the total number of the retardates.

Early identification and intervention would maximally benefit the mildly retarded. Special education and training may be given to this group following the principle of normalization as far as practicable.

The impact of stimulus deprivation on the development of intellectual and social competence has been widely documented (see Sen, 1976). There is enough evidence that the type of stimuli to which a youngster is exposed during the first six years of life and the extent to which a youngster has opportunities to interact with a changing environment are directly related to the intellectual development of the child in the form of development of complex networks of information. If the child is exposed to an environment comprised of a variety of stimulation, it encourages verbalisation, provides chances for exploration and gives ample opportunities for manipulating objects. Again if the experience is rewarding, the child is expected to develop relatively rich repertoire of information in contrast to a child who has been denied all such stimulations.

The self image of the retarded also needs to be developed. It may be possible to encourage them in expressing their ideas through painting, drawing, clay modelling, sculpure, etc. The Creative Growth Centre in California is doing a wonderful job in this direction. 'Creative Growth' is a community based programme for adults with mental, physical and emotional handicaps in Oakland, California. It provides a supportive, non-competitive art studio environment, counselling, communications and idependent living skills, and also an art gallery to display the work of the handicapped participants. A dedicated husband and wife team, Dr. Elias Katz, a Clinical Psychologist and his wife Mrs. Florence-Ludens Katz, an art director, started the centre in 1973 with a grant from the office of Human Development of the U.S., Department of Health, Education and Welfare.

It is a unique programme dedicated to the idea that all individuals, no matter how severely handicapped (mentally, physically or emotionally) can gain employment, enjoyment and fulfilment through painting, sculpture, print making, and can also produce works of high artistic merit. It cherishes to the conviction that all people including those with physical, mental, and emotional handicaps, - have the capacity to grow and develop as happier, more productive human beings through creative art experiences. The programme is geared to individual needs and many exceptions are made so that the handicapped can grow at their own pace in their own direction. The individual gain self esteem while improving communication and social skills, part of the overall development of one's potential for independent living. Counselling and independent living skills are also integrated into the programme of the 'Creative Growth'.

In India, three artists from Jyothisangh, Ahmedabad had won in 1979 international distinction for their works of art which were selected for exhibition at the prestigious 17th International Exhibition of Art by the Mentally Handicapped held in London.

The moderately retarded needs special educational programme which should aim at development in major learning areas. In addition to basic education in 3 R'S training in self care skill needs to be given. This should include major developing areas like motor integration, perceptual and motor skills, language and communication and conceptual skills. Special curricula may be developed and standardized for this purpose.

The retardates may be given special training leading to practical help in their day to day life, such as dressing, independent movement, handling of money matters, maintaining personal hygiene, learning to communicate about their needs, self-help, etc.

Creation of more service centres and day care centres leading to development and training of the moderately and severely retarded is needed. Day care centre has been looked upon as a modal form of care in most of the countries as has been noted in the WHO workshop of the South East Asia Region held in New Delhi between 12-16 Sept., 1978 for the 'development and strengthening of mental retardation programmes. It is less complicated to institute and less costly to maintain the desired level of care, and at the sometime it preserves family ties. The consensus of the workshop emerged to emphasize day care as the more generally applicable setting for retarded children of school going age. Grunewald (1980) also commented that "an influence for favourable development is to be found partly in the small number of interpersonal relations forced upon the retardate thus making them potentially stimulating rather than frustrating, and partly in the homelike atmosphere and equipment of the room and of the unit to which the room is connected." (Grunewald, 1980: P.66).

Creation of small, parent-initiated facility in diversified forms for the retarded children outside the mainstreams of professional educators, and administrators, has received impetus in recent years. The advantage of

adopting the principle of "small environment" for the severely retarded where the number of persons for interaction is limited to a group of 5 to 8 or even less has been outlined by Grunewald (1980). It has emphasized a caring atmosphere, and day facilities that preserve the ties with families.

The significance of early education programme and the nature of pre-schooling programming has been detailed by Neishworth and Smith (1978). In the Indian context Malhotra (1979) has also suggested some development of educational programmes including home-stimulation programme for the retarded. In a bid to deal with the practical aspects of MR, FWMR (India) also recently gave a call for Essays for competition entry leading to practical programme concerning curriculum/training schedules for the mentally handicapped. A number of such essays (Ahear, 1979: Radhakrishnan, 1979: Shamim, 1979) have shown sufficient merit which deserves consideration for a follow-up.

The profoundly retarded who need custodial care constitute only a small portion of the retarded. More institutions may be started in all states to look after such cases. Adequate trained personnel may be employed in such institutes. The families who cannot bear the life long burden of the profoudly retarded children, emotionally and/or financially, need to be helped by the state. This situation may occur to any type of family background, irrespective of race or creed. If the families can afford, they should pay for the care of their wards in the institutions according to their income, in case they are not willing to keep such cases at home

along with them. Conversely, if some family wants to keep such children at home, but cannot afford it, they should be given help from the state.

Vocational Training of the Retarded:

Academic achievements are relatively unimportant in comparison to social adaptation and vocational training of the mentally retarded. Vocational training is the only means of making mentally retarded economically and socially self-dependent, at least partially. A civilized society is keen to see that even its most humble member, with severe shortcomings, be it physicall or mental, finds a place in it though in a meagre way, without unduly living a parasitic life. In this context scientific enquiry is of utmost importance to tap the abilities and limitations of those less fortunate inhabitants. So far as the mentally retarded is concerned, there is also a growing consciousness in recent years that at least some of them can achieve a reasonable degree of adjustment to work and social life. This conviction is receiving impetus from research findings all over the world. The last few decades have witnessed various efforts made by investigators in different countries for evaluating and predicting the potential of the retardate for vocational rehabilitation.

Vocational schools for the mentally retarded adults are not too many in India, as a result many of them do not find suitable jobs even after education and training in special schools. The sheltered workshop is the ideal for employment of the trained mentally retarded. A Sheltered workshop serves as a transitory place for mild and moderately

retarded to receive training in various trades and crafts, to develop more skills and provide opportunities to get jobs in the open employment. The training is provided in sheltered atmosphere. Structured work problems which vary in complexity can be created to develop his work capacity. Sudden transition to work environment is not easy; on-the-job training and sheltered workshop are necessary to protect him from the stresses of competitive more situtations. For mentally handicapped adults sheltered workshops, farms and employment by industries are needed. For severely retardates and many moderately retarded, who are not capable of receiving open employment, sheltered workshop is the only answer for employing them permanently. After receiving training they work on various subcontract works received from various agencies.

The process of job identification is not so easy when planning for the employment of the mentally retarded worker. Jacobs et al. (1979) have given a source of general information on appropriate jobs which is designed to help the counsellor locate these jobs and employers within the community. The 158 job profiles are arranged in 6 related groups: (1) merchandizing occupation, (2) office occupations, (3) service occupations, (4) agricul fishing/foresting, (5) skilled trades, and (6) processing and manufacturing occupations.

Training can be given both for vocational and pre-vocational phases of a training programme. Different types of training programme may be conducted in a variety of combinations and settings. Training could be in basic skills which refers to the preparation of the trainee in the fundamental and academic skills such as reading, writing

opportunities for personal growth and community placement. There are now 160 non-profit autonomous members of goodwill industries of America, Inc. which constitute the nation's largest private rehabilitation programme serving 60 per cent of American vocationally handicapped persons. William C Wiegers, the executive director of the industries of the Greater East Bay says that, "No matter what abilities a person has lost, other abilities remain. The first big step in new hope to a handicapped person is to find that he can do best..... it is a living faith, for by it we mean service, team work and a genuine belief in our individual responsibility toward our fellow men, convinced that the true object of all help is to make helpunnecessary". Goodwill trains persons with mental, physical or social disability, for jobs that they can do such as warehousemen, food services, sewing, drycleaning and laundry, upholstery, woodwork, small wares repair and bicycle repair. The training in a specific field is provided in accordance with the trainee's own efficiency and employment potential. The training is also geared to specific openings' demand for unskilled or semi-skilled, as available in the communities' placement market.

Today, Goodwill is international in scope with the active support of people of many faiths. There are many Goodwills throughout the U.S.A., Canada and other nations. East local unit operates independently relying on its own community to formulate and execute its programme. Their venture has been well paid off, as the commodities they sell, are procured from different families free of cost who

and typing that are applicable to almost all jobs. The second is training in care skills providing the trainee with experience of more complex activities, common to a particular group or general groups of jobs. The third type relates to the preparation in specific skills required by the trainee in which he is to be placed. Finally, the work adjustment traning that pervades all aspects of training and is concerned with motivation, work attitudes, work habits and productivity.

In a recent work Sen (1981) has reported the findings of an empirical study dealing with appropriate manipulation of certain variables which would have a beneficial effect in bringing into the universal transfer phenomenon among the retarded including moderately and even a few severely retarded.

Vocational training and education of the retarded should train them for independent living as far as possible. Work may be given to them with financial recompense. The staffing pattern and the training of the staff employed should be given due attention.

Sheltered workshops may be started in different parts of the country to absorb the mildly retarded and even some moderately retarded who can prove their worth under proper training and care.

The goodwill industries in some western and eastern countries mainly employ the retarded. These industries were first organised in Boston in serving the disabled, vocationally handicapped and vocationally disadvantaged by providing vocational rehabilitation services, training

want to dispose of their old belongings, used or unused. The donors in exchange get substantial benefit in terms of tax exemption due to their charitable gift. The scheme is working well, the consumer gets the product at a very low price in contrast to market price and all the parties involved are equally behefited from such endeavours. Though it is not sure whether such a scheme would also work with such efficiency in India, the project is, however, worth trying.

Residential Facilities for the Retarded:

The retarded adults should be absorbed into the community as far as possible. they may live satisfactory functional lives with their families. However, they may also live in small residential groups.

In the developed countries, there are ample resources to have elaborate schemes for the welfare of the retarded. The system suits the specific culture and demand as neither the families have time nor have the will to continue with the retarded children. States' help is readily available, and whenever the families can afford, they pay for their wards after sending them to some retarded home and institutes. The 'Clausen House' in California, provides a residential house for the retarded which gives them practical training as well as pre-vocational training. The Clausen House is a series of residential facilities for mentally retarded adults operated by a non-sectarian, non-profit corporation under the sponsorship of the Episcopal Diocese of California.

It provides active programming thro-ugh-out the week in a residential setting whi.h includes ela.orate instructions in the basic skills of independent adult living and additional training in living skills. Recreational activities are also included in the programme to enhance the residents' abilities to plan and structure leisure time. The special project GOAL(greater opportunities for adult living) is an apartment facility which provides a semi-independent living situation for those Clausen House residents who are ready for an intensive, individualised programme in independent living.

The retardates should have a chance if they so desires of independent living and working, away from their own family. However, the issue of residential facilities of the retarded need to be worked out individually for each society and culture. In Indian context, it seems that whenever possible the fmaily may be encouraged to look after their own retarded off-spring (irrespective of degree of retardration) for which the family may be provided financial assistance, particularly when the retarded child is not gainfully employed in a sheltered work-shop or in an open industry.

In India, the retarded child as far as possible is to be looked after by the family. The failure of institution-alization programme and state hospitals in the west should point out the correct perspective in the Indian setting. The family bond is strong enough in India, the child should be absorbed in the family as far as practicable. The concept of mother teacher needs to be given proper consideration. If the mother devotes time for the retarded

child in a natural environment, all encouragements and material incentives should be provided to the family. The state may give some financial assistance to the family. Some weekly classes for the parents of the retarded may be organised in different localities which would enable them to be acquainted with the probable solutions for various problems faced by them as also they would be able to interchange their ideas and views regarding the problems of their off-spring with the fellow parents.

The residential facilities may be provided for these retarded whose home environment is not a congenial one or whose condition is so profound as to demand a cot care which the family cannot afford.

Proper legal provisions need to be made for the protection of the retarded against exploitation and their uncunning involvement in some low related problems (see Sen, 1978). Co-ordination of professionals concerned with the problems of the retarded may be effected in the form of periodic organised meeting at different locations. Need for public awareness about the problem of retradation and development of the correct attitude towards the retarded is another prerequisite.

Training of the Personnel:

Any programme in the services in the field of retardation calls for co-ordinated efforts in the mobilisation of all possible avenues in an attempt to ameliorate the condition of the handicapped and to rehabilitate him into the community. Needless to mention that Government both at centre and state levels, local

authorities, voluntary agencies and public at large should work concertedly in this direction.

The very nature of the problem of retardation involves persons of different professions with diversified background in training and education. Adequate training and education of all personnel involved with the care of retarded is of primary importance. Medical practitioners, specialists, psychologists, teachers, social workers, technicians, all should receive a good background in the subject of retardation.

The task of training the personnel is not a simple one. However, the most valuable resource for the retarded is his teachers and staff. It is, therefore, of utmost importance that staff would be properly trained. Therefore, special emphasis should be laid on training of teachers of the handicapped leading to a comprehensive understanding of the condition as well as acquirance of knowledge about modern techniques of education, training and management.

Training programme would also involve training of personnel for residential institutions and day care centres. where children would have mostly profound and severe retardation. Special education teachers, teacher helpers, crafts teachers, administrators for retardation centres are the pre-requisites for education and training of the moderately and mildly retarded. Similarly trained personnel is also needed for imparting pre-vocational and vocational training of the retarded.

Training of the parents is another important concept. The emphasis on parental involvement in the education of their handicapped children has received ever increasing impetus over the last decade. The rationale for parental involvement and in consequence their training, has been expanded by Prof. Peter Mittler in a lecture organised by the FWMR in 1979 during his visit in Delhi that time (see also Mittler, 1980). It is of utmost importance that parents, particularly mothers should receive adequate guidance for promoting physical and mental development of the retarded off-spring. They also need counselling in their own psychological adjustment towards acceptance of the very hard truth that the child is handicapped. Guidance to parents and their involvement particularly in the pre-school training of the child is of utmost significance. In fact, the whole family of the retarded is in need of help both economical and psychological. The attitude of the siblings, the relatives residing under the same roof have to be moulded so that proper development of the abilities and capabilities, howsoever might be restricted, can be ensured.

Concluding Remarks:
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Though the exact number of retarded is not definitely known, it has been estimated that there might be about 24 million retarded in India(see Sen, 1981). Prabhu (1979) has indicated that taking the average Indian family size 5-6, one out of every 8 to 10 families is directly connected with the problem of mental retardation.

Though a majority of them would be only mildly or

moderately retarded. However, in Delhi itself about 2000 cases are diagnosed as retarded every year. The existing facilities absorb about 100 of them. To date, there are about 150 known institutions in the whole country providing 8000 beds for a population of 24 million retarded people. The institutions provide clinical medical, educational, vocational, pre-vocational, teacher-training, research, psychotherapy and care. Of these, educational and vocational programmes are more common and psychotherapy is the least. The services which are now available are primarily concentrated in major metropolises, but many states and cities do not have any facilities at all. Most of the institutions are either run exclusively privately or privately with some aid from the state/central government.

The facilities available for habilitation of the retarded are far from satisfactory. Adult retardates have received the least attention so far in India, and facilities for them are relatively few throughout the country. Neither the private organisations nor the state authorities have dealt sufficiently with the problem of mentally retarded adults. In recent years, however, attempts are being made in many parts of the country to devote some attention to them.

The problem of the retarded in the villages is not the same as it is experienced in the cities. In the villages as also sometimes in cities many are ignorant about the concept of mental retardation. When the child

is unable to continue at school, he is automatically absorbed in the family trade. However, in many cases, their handicap would be conspicuous if they are transferred from a rural set-up to an urban one.

In the cities, when the mentally handicapped child cannot continue at school, he poses a serious problem for the family as also for the community at large. Industrialisation-cum-urbanisation brings in more plight for the retarded in terms of their adjustment to the community.

However, an awareness of the nature and problem of mentally retarded has been growing in India over the last two decades. The unholy trinity ofilliteracy, malnutrition and poverty contribute to disadvantages in the intellectual and social development of the growing child. Poverty also forces the off-spring of the poor to have very limited sphere of experiences. Because of the complex nature of the Indian social structure it is reasonable to assume that it would be much more difficult to eradicate completely some of the social evils like poverty, casteism, rural-urban discrepancy in facilities, prejudice and discrimination, poor nutrition, inadequate health services, substandard housing, inferior education, unemployment etc. However, with the gradual elimination of social inequalities and moulding of attitude it might be possible to develop the right perspective. And even though it would not be possible to reduce the prevalence rate of mild retardation by way of complete removal of environmental deprivation, creation of better scope for

their care, training and rehabilitation would go a long way in ameliorating the conditions of this group and this is the need of the present time.

Mental retardation is not just a medical problem, it is basically a social problem. It is a challenge for any of the interdisciplinary sciences having direct or indirect concern for mental retardation. Amelioration programme involving welfare measures - education, social and rehabilitation would be the correct perspective for modifying an existing or developing effect.

It is heartening to note that in the recent past the behavioural scientists in India also have shown their concern for far reaching consequences of multifarious aspects of retardation. One manifestation of their concern has been in the form of organising seminars, symposia and conferences in different parts of the country. The Golden Jubilee Conference of the Indian Psychological Association on "the Disadvantaged Child" (University of Madras, October, 1976) has made specific recommendations for providing extra facilities which are meant to compensate for the improvised environment of the children. The year 1979 International Year of the Child has also seen a number of activities concerning welfare of the child in India. In order to develop a policy and a plan of action at the national level a draft of recommendations was prepared by Indian experts at the initiative of Director General of Health Services and the Ministry of Social Welfare, Government of India. The current year 1981 has been declared as the year of the disabled and a number of conferences at different levels are being organised

as one of the main activities concerning the handicapped. Implementation of some important recommendations would go a long way for an overall development and learning of the retarded.

Though sufficient literature is now available concerning the assets and deficits of the retarded, more research is necessary in the educational field in the Indian context. An action oriented programme is awaited alongside with the need for research.

Some of the Important Areas of Research for Education and Training of the Retarded are:

(1) Determining the prevalence of mentally retarded including rural areas and identification of mentally retarded in its different categories.

(2) Development of intelligence test with particular reference to non-school going children who might have different cognitive styles from those having school experience which are usually subtly imbedded in the so-called intelligence tests.

(3) Development/adaptation of social adaptability scale.

(4) Role of stimulating environment on learning and other cognitive developments.

(5) Role of mother/parents in the education of the child.

(6) Factors affecting learning and remedial measures.

(7) Education and training during pre-school years (upto 6 yrs.) Determination of the nature of pre-school experience necessary to be given.

(8) Scope of special education (16-18 yrs.) integrated education for mildly and moderately retarded. Scope of mainstreaming. Areas of adjustment and maladjustment.

(9) Impact of small group, day care centres for the severely retarded.

(10) Scope of Training and rehabilitation of the adult retarded. Training the mildly and moderately retarded adult in pre-vocational and vocational skills. Factors affecting such training and consequent vocational adjustment and rehabilitation in the community.

(11) Education of the personnel who are directly or indirectly concerned with the welfare of the retarded.

May be by the turn of this century we would be able to produce an optimistic picture about the conditions of the retarded in India even with the limited resources available in our country, provided we can have a co-ordinated effort in the mobilisation of all possible facilities for the retarded. The most logical way of amelioration of the condition of the handicapped would be by means of a commulative programme both bio-medical and social, for individual development from conception onwards in conjunction with the parental education and mobilisation of environmental facilities. This would involve formulation and implementation of appropriate policies for an all round welfare of the handicapped in different parts of the world.

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4.02.0 Lead paper

LEARNING DISABILITIES

(SPECIFIC READING DISABILITIES)

BY

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Going found a magnificient museum in koln (Cologne) West Germany, seeing slides with historical reviews in German language, and hearing commentaries, I came out with utter frustration. I was like an illiterate person, disgusted with the affairs around. I had the feelings of a child with reading disability. In the modern literate world every move is directed and geared by the printed word. What must, this apparently normal, bright and lively child, be thinking? Consider the plight of this 'way-sider' in Crosby's words. (1) In our rush for education and learning to read, this "way sider" tumble's down, and waits for some one to notice, recognise and provide help.

Eisenberg's effective expression " a handicap in reading is a crippling disorder in a society that is increasingly dependent upon literacy", (2) sums up a hard fact that blocking of the avenue of written word, closes the treasures of literature and makes it difficult to earn a living or make adequate social contacts.

The superiority of human race lies in the innate neurological ability of man to communicate, and reading is but a wider extension of communication skills. Reading is the function of the brain. It is an elementary neurological process in a direct continuum of other developmental processes like sitting, walking, running, [illegible],

talking etc., which develop before the school- going age. Reading, writing, and arithmetic are cortical functions developing at school age needing the stimulating help of the teacher. They also depend upon the ability of the child to form automatic and permanent associations between what he hears, says, sees and writes. If the child is unable to make such lasting association, he faces failure. Dysfunction of some cortical area leads to dyslexia, inability to read or its related disability dysgraphia, inability to write, or dyschalculia, inability to do arithmetic.

The majority of children learn to read with an astonishing ease and make us forget that reading is a "complex network" or cognitive processes. It requires the child to use visual, auditory and motor skills to recognise words and symbols to associate them with sounds, interpretting previous experiences to give meaning to these sounds. Gradually he supplements the sight and sound approach by sequence, structure and sense.

Extensive surveys in Britain and the United States, leave us with the uncomfortable feeling that more and more reading casualities are taking place in the community. According to the figures quoted in 1960 by the Dyslexia Memorial Institute, associated with the Wesley Hospital, Chicago, about 30% of the pupils in grades IV, V & VI show that they do not have sufficient reading proficiency to handle the programme of typical American Elementary School. (3) Dr. James Bryant Conaut, former President of Harvard University, states that after carrying out a survey of American Secondary Education, under the auspices of the Carnegie Foundation, he has come to the conclusion that 40% of the pupils in the 1st, 2nd and 3rd years of American

High Schools are reading at the sixth grade level or less (3). Margaret Newton in her paper reported that it is estimated that 10% of school children in Britain have the linguistic coding difficulty (4) Robinovitch (1968) cautiously put the reading backwardness at 3% while some American authorities regard it as high as 10% of the total school population. The most recent survey report, mastermined by Sir Allen Bullock says that literacy standards of school leavees are not satisfying present- day requirements. It also reveals that in an assessment of the reading ability of 12 years olds, more than 22% were 'below average' (5) One wonders at this incidence of reading- failure going up. There are several reasons. Some children fail to read because they don't have the intellectual capacity to read, others fail because they grow up in a culturally impoverished environment. There may be some who emotionally upset because of traumatic home or school coudition that their concentration to work might cheat them. Still another group might lag because of inadequate teaching teachniques. Then, there is the group who may have difficulty in learning to read despite conventional instruction, adequate intelligence and socio-cultural opportunities, and proper teaching techniques. This is the vulnerable group which runs the risk of remaining illiterate unless helped by an understanding teacher who uses proper teaching methods.

In 1877, a German physician, Kussmaul, invented the term 'word blindness' and called attention to patient who was unable to read although his vision, intellect and speech were unimpaired (7) several professional papers

emerged after Hinshelwood's book on 'Congenital Word Blindness' but the clinical information gathered from these papers, was not usable by the average class teacher or those most vitally concerned: the parents.

Burt's emphasis on environmental and psychogenic factors came after his investigations into backwardness and led to a temorary loss of interest in congenital- word blindness. The interest revived with T.S. Orton, an American psychiatrist and Neurologist in 1925 (IO) and led to the formation of 'The Orton Society' - a major professional force in U.S.A.

What had been once a medical field was taken on by sociologists and educational psychologists, Augusta Brunner (1917) emphasised the complexity of reading processes (6) Burt (1937) and Schonell (1948) in Britain described the precipitating factors of reading disability together with with diagnostic and remedial techniques. Gates (1922) in America analysed the skills and perceptional abilities underlying the process of reading and developed tests of reading readiness.

The historical background of reading disability and its etiology outlined under the theories of 'genetic factors', 'maturational lag', 'neurological dysfunction' and 'cerebral dominance' and not mutually exclusive. There is almost always an overlap between one causative factor and another. Reading disability occurs at all levels of intelligence and may be aggravated even if not caused by environmental factors and emotional maladjustments.

Writers agree that in developmental reading disability, boys outnumber girls. (Ratios range from I:4 to I:IO)

This might be due to social reasons as a boy, backward in learning to read causes more parental concern, then a girl facing the same problem but there may very well be a genetic factor underlying its occurance.

M. Critchley (6) reports that reading disability also occurs when language is strictly phonetic, such as in Germany, Spain, Italy, Holland and Greece. It would occur in China and India also though the exact pattern of defect has not been identified. In 1961, a Japanese neuropsychiatrist, reported the case of a 12 year old boy with reading disability. A pediatric neurologist, Dr. K.K. Sachdeva, (All India Institute of Medical Sciences, 1975) reported of the incidence of specific learning disability as a cause of school failure in 89% of the sample from upper and middle income groups.

BEHAVIORAL SYMPTOMS ASSOCIATED WITH READING DISABILITIES.

Etiology is the field of neurologists and medicalmen while the educationist is more concerned with the behavioral manifestation of the disabled child. How does he behave? What makes him different?

Specific Reading Disability occurs with a variety of sensory and behavioral deficits. To reduce the beterogenity of Sympatoms, Benton classified the disorder into two major types. "Parietal" occuring because of lesions in the parietal lobe and is associated with severe dysgraphia. "Occipital" arising out of lesions in the parieto-occipital area of the dominant hemisphere and reading is facilitated by kinesthetic clues and tracing methods (2).

Whether hemispheric dominance is a cause or an effect is a question still to be answered. Orton (1937) first remarked "defects in the development of the language

function may arise from a deviation in the process of establishing unilateral brain superiority" (10) and eversince this has been a discussion point among educators.

According to Crosby "disordered dominance is not a cause of neurological reading disorder, but an effect of the same neurological process that caused the reading disability".

Reading disability may be associated with visual and auditory preceptnal problems. Visual imperceptions appear in conjunction with one or several of the following symptoms such as impaired tactile percemption, faulty auditory perception, dysgraphia, dyscalculia aphasia and other language disorders, poor motor coordination, improper sense of direction and body image.

Visual imperception associated with reading disability range from severe to minimal. The child may have difficulty in differentiating letters in alphabet. He makes "crazy" errors in spellings, "guesses" and "fudges" while reading aloud. The look-say method is a disaster for him. He needs phonics and tactile perception through writing. He has special problems with letters which are rotations and reversals e.g. bd; pq; MW;. He may also reverse the order of letters e.g. dog for god; tar for rat etc. The normal child also makes these errors but he soon grows out of them and quantitatively makes less of them. Bender Gestalt is a useful and simple way of delecting this type of disability.

Tactile imperception along with visual imperception may also appear in reading disability. On its own tactile imperception does not present a problem in learning but knowing about it givens a clue to teaching as

he will not benefit from tactile techniques pioneered by Fernald. He must be taught phonically.

Some times reading disability appears in conjunction with dysgraphia and visual imperception. In that case the child shows faulty spellings, erratic formation of individual letters, as well as poor penmanship. Correcting the visual imperception must be done through drill in discriminating one letter from another i.e. intensive use of phonics and kinesthetic method, if no tactile imperception is present. Dysgraphia is difficult to correct. It might improve as usually perception improves with maturation. However, there should be less emphasis on writing and mechanical aids like typewriter might ease the child's problem.

Perceptual problems are frequently associated with motor problems, and they do at times show up with reading disability. Severed motor dysfunctions appearing in Cerebral Palsy, Polio, Multiple Sclerosis are quite obvious. Minor motor dysfunctions, though cause problems for the patient are not obvious for the laymen. It may manifest by difficulty in doing repetitive motions, performing independnent tasks with each hand, following movements that involve a pattern and a generalised poor coordination. Crosby (I) describes several ways of testing for these neurological motor difficulties of patterned movements "mirrormotion" and motor praxis. The diagnosis of these is helpful in bringing an understanding and sympathetic approach to the forgetful, distracted, disorganised, haphazard and 'clumsy' child.

On the other hand, Auditory perceptnal problem, although less common fortunately, is the most difficult to

tackle. Auditory imperception makes it difficult for the child to even approach the task of learning to read as he hears the sounds in-correctly and speaks them incorrectly too. For diagnosing, "Wepman Test" is used in which the child picks out words by the different sounds they make and by listening carefully one can identify the sounds the child hears incorrectly. The child will best learn through visual and kinesthetic means and this is the one neurologically impaired child for whom the look say method is a boon.

According to Critchley, the "socalled" "soft" "neurological signs are more likely to be demonstrable in younger agegroups, for as the children grew older they tend to loose their disabilities". (6) The neuroligists report that a child carrying out an intricate movement with his fingers and hand on one side, automatically performs faint phantom mirror opposite movements with the other. This phenomenon of "Synkinesia", as they call it, can be observed crudly by hand-grasp test. If the child squeezes the fingers of another persons hand tightly, the other hand also automatically, flexes. Some younger children show difficulty in the performance of spatio - constructional tasks, including jig saw puzzles and kohs' blocks.

Each child is unique- he may have a simple disorder unaccompanied by other neurological difficulties or he may have a complex array of neuroligical peculiarities. He may have no demonstrable perceptual or motor difficulties, yet still have problems. The multifacted nature of reading disability is its greates challenge to parents, educators and physicians.

IDENTIFICATION AND DIAGNOSES

In neurological circles, the teem Dydexia is well understood, but in educational circles, after the Tizard Report, it is referred to, as a kind of Reading Disability. Diagnosis without remedial action is useless no doubt, but how can remedial action be taken without uniquely indentifying the exact handicap?

It is of paramoont importance to indentify at an early age shy a child is failing to learn to read, as the failure to recognise, causes anxiety, frustration, depression and unavoidable misery. The question arises how early reading disability can be indentified? De Hirsh, jansky and Langford (1969) and Meleod (1969) report that it is possible to fore cast, when children first go to school, those likely to find reading difficult. Francis williams study (1970) of pre- school children shows that it is possible to pick out before children go to school, those with specific learning difficulties. Effective screening should be carried out during the first year of school by teachers, and doctors. This certainly requires the construction of a battery of tests which teachers should be trained to give. Medical case history should include history of speech and motor development, child's articulation, language and motor-coordination. Cases of uneven development could be presented for complete neurological and psychological investigation. Sandhya Naidoo supports the idea that teachers should be aware of the "out of step" development of children, should be able to recognise those " at risk" and provide understanding and support for their emotional well-being (12) Margaret Newton

working on a similar idea said " its the teacher in the calssroom who needs the ability to diagnose children who are going to have language difficulty" (13) and put into the hands of teachers all over Britain towards the end of 1975, after validating its statistically -- the Aston Index-- a tool to pick up school children " at risk" in learning to read, as early as they begin school and later at seven.

The Aston Index is an integrated approach, providing the teacher with a profile of each child and includes some original tests to find out the general underlying ability in terms of picture recognition, vocabulary and recall as well as his visual sequential memory, his recognition and recall of digits, and his sound discrimination and sound blending. Margaret Newton hopes that teachers while talking to parents will discover any family history of laterality or reading and writing problem. Laterality is the "keyword" according to her, who believes confusion or inconsistency in lateralisation is a significant tactor in many children who have reading problems. The Aston Index consists of three parts, Form I, Form II and Form III. The first two are divided into three areas (Appendix - B).

Earlier attempts at identification of reading disability consist of various Batteries of tests and Checklists described by different writers at different times. Dale R. Jordon (14) talks about three " faces" of dyslexia that is visual Dyslexia, Auditory Dyslexia and Dysgraphia and presents a comprehensive checklist for each kind of dyslexia for the teacher.

Careth Ellingson (ii) talks about the strengths, weaknesses and handicaps of a child as "triangle of" his learning potential "This triangle of learning potential may be thought of as a child's prescription for learning - the prescription blank is written by testing and diagnosis- the prescription is filled by out teachers". She describes a checklist with items mainly from Paterson- Quay- Werry- Weiss Peters Scales which can be easily scored by teachers and parents (Appendix C). Some of the essential standardised tests in addition to the checklists suggested by her are WISC & WPPSI Marianne Frostig, Bender Gestalt, Detroid Tests of learning Aptitudes, Eisenson's examining for Aphasia, the wide Range Achievement Tests, Wepman Test of Auditory Discrimination, Goodenough- Marris Drawing Test - and several others.

Sandhya Naidoo (4) stressing the need of early identification to "avoid years of frustration" describes the assessment procedures to consist of teacher's day to day records of sensory functions, motor functions, behavioral problems and psychological evaluations consisting of intelligence Tests (individual and group), reading and spelling Tests, Tests of speech and language, Visuo-perceptual functions, Laterality and Right/ Left confusion.

It is an established fact that psychological Tests have their limitations and there is not a single perfect flawless testing instrument. So, until a perfect diagnostic instrument is devised we must be content with what we have and make the most of it. However, there is a growing awareness about the coordination of the various disciplines of neurology, psychology, and education to join hands in the diagnosis and identification of Reading disabilities.

I would like another pair of hands to be joined in and that is of the parents.

TEACHING TECHNIQUES

An article by Dr. Smith, 'Trends in Beginning Reading since 1900' gives a historical account of approaches to reading in U.S.A. She states that by 1900, the alphabet approach to reading had disappeared and the phonic approach started in 1890, was in full swing. The appreciation of reading with comprehension gradually scorned the 'juggling with meaningless phonic elements' and phonics was practically abandoned. The pendulam swung to the other extreme of an exaggerated emphasis on silent reading for meaning. The Activity- movement came in by 1920 and by 1940, systematised reading programmes and the use of basal readers was in vogue. The 'new' phonic method with word attack approach, television method, programmed instruction, linguistic approach, the individualised plan, the Augmented Roman Alphabet, were rather old wines in new bottles,

Horrace Mann's whole-word or look say method was fully developed by the middle of the 19th century, which regarded phonics as boring, frustrating, and confusing for the child. The phonic-advocates on the other hand condemned the slow and time-consuming element of look-say method. However, the two extremes have sought an accomodation and the goal today is an amalgamation of both methods. This combination in class room situation is applied in three ways - the Basal Reading Programme, the language Experience Approach and the Individualised Approach.

Walcutt blamed the various analytic 'look-and-say', 'flash', 'see-and say', 'lobal systems of teaching, which

concentrate upon the earl identificatic' of a word with its meaning, rather than its sound, for producing more reading problems. And several others agreed with him. In 1960, the San Francisco Curriculum Survey Committee made recommendations under the heading 'Reading: the Basic importance of phonics' and suggested that phonic or syllabic (but not alphabetic) techniques, possessed certain merits for the poor reader, although they were not in keeping with the Gestalt principles of learning. It is not fair to say that a particular method can cause reading disability. In 1937, Orton reported three times more reading problems in children taught by look-and say method (I). Munroe also advocated the old fashioned phonic approach.

Bender believed that there is danger in starting children to learn to read too early. She gave the example of Sweden, where there is relatively low incidence of reading disability and the children first attend School at 7 years. Connected with the problem of when to start schooling, developed the concept of 'reading readiness' and several Reading-readiness-Charts'. But they do not improve reading disability, except by bringing about early diagnosis.

Attempts have been made recently to counteract the illogical, spellings of the English language too. Bernard Shaw's extended alphabet, pitman's Augmented Roman (A.R.) also known as the 'Initial-Teaching Alphabet' (I.T.A.) with 44 characters, Lyn Wendon's Pictogram System are the outcome of such efforts.

The fact remains that educational research aimed at improving methods has not eradicated the hard core of the problem- reader.

Though there is a wealth of clinical knowledge about Reading disability, we do not have appropriate school programmes or public awareness as to how to teach these children. Today, a deaf or blind child can more readily receive a well-sounded education then a child with reading problem, because their problems are easily recognised and widely understood.

T.R. Miles(16) suggests the sort of information to be given to the parents, so that they can actively participate in the amelioration of their child's reading problems. Suggesting guidelines to teachers and stressing the importance of trial and error and flexibility of approach, he puts forth the system of "Building up a dictionary" and "phonetic - cue-method". He found success by giving practice in writing series of phonetically systematic words to give confidence and understanding of irregular English words.

Ellngson appropriately sums up the rationable behind these methods 'Most Clinical methods" for teaching the slow leaver "are ligical step-by-step progressions which help build neural pathways within the child" (ii). The earlier the slow child receives the remedial help, the easier it is for teacher and child. Ellingson also stresses the importance of patience and time and describes the pre-reading skills which should be taught before starting teaching to read and the multi-sensorial approach for associating letters and sounds.

G.L. Sceats teaching a 10 years old no-reader, Arther in Newzealand, found great success with "the Scott Programmed Reading kit" and suggested to raise the child's mind to a conscious logically reassured level.(18)

Talking about "Remedial Re-Education", Sandhya Naidoo (4) advises a programme devised on through understanding of the child, as to where he experiences particular difficulty, knowledge of his strengths and weaknesses, positive motivation, teacher pupil relationship, individual instruction and success- experiences.

Gill C. Cotterel (4) gave three lectures on the teaching procedures and advocated (Edith Norrie letter - Case-System) and Fernald. Auditory - Kinesthetic method for auditory dyslexics; and junior phonic - Rummy game, simple spelling rules, language training, mechanical aids like typewriters and a systematic approach to basic sounds through a check list, for visual dyslexics.

In the Rehab Report (19) a parent gives a useful suggestion about "name-the-shape" alphabet and " family of letter" devised by her for her child.

Margaret Newton and Michael Thomson (suggests an underlying philosopy of "PERCEPTUAL ANCHORS". They profess " a system of rules, orders and regularities which can be reinf[illegible]od by concrete m[illegible]iational strategies and relevant mnemonics" The te$_a$ching environment according to them, should suit individual needs and has to be motivating.

In an appeal to parents and teachers Crosby suggests three A's acceptance, approval and affection (i) In planning a curriculam for slow learners he suggests to limit regarding, in primary stages, to a handful of words essential for their safety e.g danger, fire, stop, go, poison etc and address. After ten or twelve years begin intensive regarding instruction. It appears to be a sound suggestion because at this stage some of the perceptual problems would have improved or disappeared and he could be taught with greater speed, much loss effort and exasperation.

No one single teaching method works in isolation what is needed is "the skillful lending of a variety of methods". Infact, I quite agree with Ortons's saying "anything that will work is a good method" and more than method is the " quality of the teacher" that is important. One does not expect miracles, but the "bond" [illegible]tween the teacher and the taught is an essential prerequisite to any improvement.

Great attention should be given to emotional consider-ation. The child needs to understand his difficulty that he will always read slowly and more work will be expected of him. Similar understanding from his teachers permission to read any way he can, by context, pictures, thumbprints on the page, just so long as he obtains the meaning. Less emphasis should be placed on oral reading and mechanical aids should not be scorned at. If, with age his condition shows perman-ence, he needs guidance into a vocation demanding less reading.

Some of the current trends and basic concepts under-lying the principles of training slow-teachers and monitoring sucess from their training programmes are -

(1) Individual Educational Plans

(2) Behavioural statement of objectives

(3) Recording progres

(4) Behaviour modification Techniques

(5) Programming instruction through task-analysis.

CONCLUSIONS

The Report of a working committee commissioned by the British Council for Rehabilitation of Disabled summarised their findings as follows.

a) that a substantial number of children and adults are significantly handicapped by reading disabilities.

b) that many of those go through life with their disability unrecognised.

c) that the provision which is made for them is grossly inadequate.

d) that there is a considerable lack of knowledge about the nature of reading disabilities and of the kind of remedial help which might be given to those who suffer from it.

e) that there is far too little public knowledge of the extent of and the ways in which reading disabilities can handicap victims (19).

The past president of Orton Society, Mrs. Margaret Rowson, once remarked that if her work was able to generate the interest and optimism for learning disabilities, within the related fields of disciplines, she would feel well regarded. The interest and optimism has been generated and the last century has brought in multiude of researches, in the United Kingdom and the United States, emphasising its multifaceted, complex nature, under the auspices of multiple disciplines interested in this field. What is more important now, is the collaboration of these disciplines and a joint effort at translating the research findings of one discipline to another and bringing it down to the level of teachers and parents for proper implementation.

There is an optimistic future for a child with learning disability, if he can be diagnosed early enough to

get remedial help under a sympathetic and understanding adult. The individual is a continuing entity- and the remedical work should be considered as a whole. The earlier it starts the more effective it would be :

If the third All India Concerence on Educational Research organised by ERIC can generate the interest of some researchers in India to study the behaviour of problem readers and the methods of teaching them, along with strategies of intervention programmes based on developmental checklists, the efforts of ERIC would be well rewarded.

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EDUCATIONAL RESEARCH & INNOVATIONS COMMITTEE
NATIONAL COUNCIL OF EDUCATIONAL RESEARCH AND TRAINING

Theme: Education of the Disabled

C.H.K. MISRA

It is estimated that over 500 million people in the world today cannot take full part in all the common activities of daily life, for they suffer from physical, mental or sensory impairments, which might result in disability, causing difficulties for them in expected performances and ultimately they are handicapped. One fourth of these people are children, four fifths of them belonging to poor families from developing countries. By the year 2000 there will be at least 600 million disabled persons, one third of the world's population will be under 15 years of age living in developing areas and 150 million of these children will be disabled. Special care, treatment and education therefore is significant. The problem is complex and sizeable and the progress towards solution has been far too meagre. What could be done under the present circumstances to prevent such a calamity? Twenty one years ago the U.N. General Assembly had declared the Rights of the child. Declaration on the Rights of Disabled persons came in July 1900. Education can be a means of achieving them. India's National Plan of Action in the International Year of Disabled Persons also supports the theme of full participation and equality. The need to evolve a National Policy for the disabled which will help the disabled persons to realize education, training, employment, legal protections and to intensify efforts to organize training, care, guidance and work opportunities for them are contained among the objectives of the National Plan of action.

Statistical estimates of the number of disabled persons in India on various categories are not yet available. The National Sample Survey organisations is going to conduct an All India Survey between July and December 1981. There is a

felt need for trained personnel, adequate equipment for early detec ions and reliabilit es , tests and diagnostic devi es. Equally important is the change of attitudes, towards the disabled, both inside and outside the school environment. Enrolment and education of a substantial number of handicapped children, schemes for scholarship, establishment of centres etc. have been taken as core services for the disabled under 14 years in this country in its National Plan.

Parental involvement for education of children with a special need has been recognised through recent research (Honig 1978). A Conference "Parenting Education of Handicapped Young Children" in May 1978 at Teachers College, U.S.A. is an instance of this awareness. A deepening and pervasive spread of child development concepts and knowledge has began to result, very gradually, in a healthy change in this treatment of children with special needs. It is being realized all over that stimulation, enrichment and optimization of growth of children are to begin early in order to prevent the severity of the effects of disability. More recently, researches by Klaus and Kennell (1976), Bell & Ainsworth (1972, Brazelton (1975) have demonstrated the power of early loving attachment between parent and child for its development. Since the handicap itself may already involve much frustrationfor a child, parent involvement is critical for such children. Ways by which parents can be involved may differ according to handicapping conditions and special needs, but it is significant to note that process variables which relate to developmental facilitation which the parents provide as well as their intellectual activity and expectation have proved far more important than status variables such as income or educational level of the parents (Honig, 1975). On the other hand, parents need advise

and orientation in order to overcome their usual sense of guilt and a tendency for overprotection. They also need guidelines for utilising aspects of the home environment for learning experience of the children.

The educator also needs far more knowledge, skills and attitudinal change in order to cope up with the challenge of educating the disabled. The existing teacher education programmes are grossly inadequate for this special requirement. Where such training exists, the conditions are not ideal. Commendable efforts are seen from voluntary agencies and public institutions in the direction. However, if an integral approach is to be taken, all teachers at all levels must be oriented. Many relevant issues regarding schools and schooling for the handicapped have been outlined (Birch, 1945). Approaches to individualization of educational materials for special children in the mainstream are also available (Anderson, 1970). Arguments for special programmes for special children (Thomas, 1980) are also put forward. Some of the theories are quite puzzling for the teacher. He needs practical guidelines for handling handicapped children effectively. He might be guided in issues regarding standards to be expected, effects of his own protection or rejection of the handicapped child, rewarding, punishing and a lot other practical information. Sandu (1974, 1976) has discussed school environment for handicapped children. Shankar (1977) has brought out the Indian situation for exceptional children.

In common with other problems of education, disability also cannot be dealt with as an isolated phenomenon. It too has an intimate and inextricable connection with other socio-economic variables, ideological issues, real priorities and insightfulness of the decision makers etc. Informed and

effective educational programmes ought to depend on research findings. Unfortunately no policy decision can be taken on the basis of sporadic and erratic research attempts, localized and often partial in view. Correlational, experimental, clinical, survey research, curriculum research, system studies and organizational studies, test development research programmes involving home, family, community, etc. Special training methods, vocationalization, self-reliance education, studies of cognitive, social and emotive development and special researches on different kinds of disability may perhaps be effective if they are conducted in a conserted and systematic manner. A two way interchange of knowhow will be necessary, since the social worker already engaged in serving the disabled would require a minimal orientation in research methods and the researcher engaged in more comfortable research pursuits within the framework of education may have to be oriented on the significance of the neglected field of education for the disabled. Other interactions would be necessary, with the medical practicener, social and behavioural Scientist, the expert in implements for the disabled and rehabilitation. Often community sources would have to be 'used' as research workers.

The scope of the theme extends beyond having to educate a given numbers of disabled children. The matter of educating people to prevent disability, prevention of accidents disably diseases etc. are also to be considered. Many impairments are reversible, if detected early. Effects of malnourishment is also well known. With experience gained from health education, it should be possible to tackle such related issues.

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